Step Up Education Outreach

Macroeconomics

Program Description

Step Up Outreach Macroeconomics

Program Description

Includes

Program Framework
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Assessment Guidelines

Effective August 2024

THE OUTREACH PROGRAM DESCRIPTIONS ARE UPDATED PERIODICALLY
Please visit Playconomics (https://playconomics.com/) to determine whether a more recent program description is available.

About the UNSW STEP UP Initiative

The STEP UP@UNSW Initiative® aims to develop and sustain an innovative interdisciplinary Education portfolio that brings together large-scale collaborative outreach activities and rich academic research projects.

Founded in 2018 by Professors Isabella Dobrescu and Alberto Motta from the School of Economics at the University of New South Wales (UNSW), the STEP UP Initiative currently hosts two programs:

- the STEP UP Outreach Education Program®, and
- the STEP UP Academic Research Program®.

The STEP UP Outreach Education Program has been conducted by Lionsheart Studios on behalf of the UNSW School of Economics since 2022. The program aims to provide pre-tertiary education students with advanced access to introductory university courses and materials to positively impact school achievement and aspirations. In doing so, it also aims to (1) create genuine collaborative links with high schools interested in facilitating students' successful transition to higher education, and (2) support teachers in delivering advanced content through the interactive platform called Playconomics® - a rich, immersive, and academically rigorous learning environment that has been thoroughly developed, tested, and found to significantly improve student learning outcomes.

The STEP UP Academic Research Program has been hosted by the UNSW Business School since 2018. The program aims to provide crucial new evidence-based knowledge to inform socioeconomic responses to the 21st-century challenges in education, with a special focus on promoting sound decisions that close the educational attainment gap of vulnerable groups. Think of it as a laboratory committed to identifying 'what works' in education and narrowing educational achievement gaps.

Why should we care? Because - as an enormous body of evidence shows - education drives vital life-long outcomes such as income and poverty, health, parenting, social isolation, and intergenerational equity. Eliminating racial and socioeconomic education disparities will lead to a more just and thriving society for all.

For further information, visit the STEP UP webpage https://www.stepup.unsw.edu.au.

About Lionsheart Studios

Lionsheart Studios is dedicated to connecting students to educational success and opportunities through innovative interdisciplinary learning environments that use state-of-the-art technologies to advance and enhance learning. Founded in 2014 with the vision to expand access to quality education, Lionsheart Studios collaborates with a wide range of educational institutions worldwide to promote excellence, equity, and inclusion in education.

Lionsheart's flagship educational platform, Playconomics, helps students prepare for a successful transition to higher education by supporting and strengthening their learning through interactive, immersive, and engaging experiences.

For further information, visit the Playconomics website playconomics.com.

What is Playconomics?

Playconomics is an educational platform that hosts and delivers several undergraduate and postgraduate courses at various institutions in Australia and abroad.

The backbone of these courses is the Playconomics video game, the first Massive Multiplayer Online (MMO) game worldwide that teaches a range of subjects - such as Business, Economics, Statistics, Renewable Engineering, and Pediatric Medicine - by allowing students to explore the inner workings of these disciplines at their own pace, and learn by directly experimenting with decision-making across a wide range of topics.

Besides their direct content teaching capabilities (tested through extensive lab and field research –

see https://www.stepup.unsw.edu.au/research), the Playconomics MMO game also has the potential to increase overall literacy (related to language, mathematics, financial skills), planning, analytics, optimal decision-making, governance, emotional intelligence, and peer learning.

Equity and Access Policy

The STEP UP Outreach Education Program places the highest priority on inclusivity and diversity within educational settings. We advocate for all motivated and capable students to have the opportunity to access advanced courses and interact with cutting-edge tools like Playconomics, regardless of their ethnic, racial, or socioeconomic background.

Our mission is to break down the barriers that traditionally limit access to tertiary education for underrepresented groups.

As a society, we should aim to mirror the diversity of our pre-tertiary student body in university educational programs and create, at every step, opportunities for those who seek to achieve it. Providing rigorous and challenging coursework to all students before they engage with the university environment is essential for their success.

By focusing on equitable access and thorough preparation, we can foster an environment of true academic excellence and fairness, ensuring that every student has the chance to thrive.

Contents

Acknowledgments

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About the STEP UP Outreach

Introduction

The STEP UP Education Outreach Program offers high school students the chance to complete university-level coursework across several subjects in different fields through the Playconomics platform. To this purpose, we provide students access to the integrated multidisciplinary video game (Playconomics), as well as its companion digital platform (Playconomics Academia®).

STEP UP courses help students develop critical thinking, strong argumentation skills, and the ability to view issues from multiple perspectives, all of which are invaluable for university and beyond.

Participating in STEP UP courses signals to universities that a student has pursued the most rigorous curriculum available. Each course syllabus undergoes a review and approval process by distinguished faculty from leading universities. Several universities in Australia and abroad accept STEP UP scores for credit.

The Playconomics game (or “the game” henceforth) and Playconomics Academia (or “Academia” henceforth) have been used extensively in many university courses around the world. By providing high school students the opportunity to participate in this innovative university-level program, our outreach aims to enhance students' understanding of the subjects, preparing them for advanced studies via an inclusive and engaging gamified approach.

Playconomics Game and Academia

The video game Playconomics, developed alongside Academia, forms more than just a standard university course with a digital textbook. Instead, students engage with an immersive learning environment where multiple subjects are covered in a singular and unique virtual universe. Created by award-winning university professors with extensive background in both education and research, the game and Academia bridge the gap between theoretical knowledge and practical application. To do so, the platform uses simulations of real-world scenarios to help students grasp complex concepts intuitively and engagingly. This method of teaching improves understanding, retention, and knowledge satisfaction.

Overall, the Playconomics platform transforms the traditional educational process by making it interactive, dynamic, and multidisciplinary. Students are no longer passive recipients of information; instead, they actively participate in simulations that mimic real-world scenarios and decision-making. This hands-on approach helps solidify their understanding and also enhances the retention of complex concepts.

Benefits for High Schools

Equitable and Easy Access to Advanced Learning

There are only a handful of outreach programs worldwide, but they are already showing remarkable promise. Research indicates that students who perform well in these programs typically experience greater academic success in university and are more likely to earn a degree than those who do not participate. As of this writing, over 3,300 institutions globally - including the majority of four-year colleges and universities in the United States and Canada, as well as over 100 other countries - recognize and accept this type of outreach programs by often granting college credit, advanced placement, or both to students who achieve successful scores.

Our initiative stands out by addressing the traditional costs and burdens imposed on schools and teachers by these outreach programs. Unlike other programs, we do not require individual teachers to design their own curriculum, select appropriate readings, create

assignments, or provide resources. There is no need for schools to send teachers to training sessions, organise large-scale exams, or set up dedicated times and classes to run the program, nor do they need to mark the students' exams.

Our goal is to provide equitable and easy access for everyone. We offer flexibility, allowing teachers and schools to be as involved as they choose to, without any administrative costs or burdens that could limit access. While we support and encourage schools to implement their own curriculum if desired, we also provide a standardised approach that enables them to test the program's effectiveness without significant upfront investments.

For students, we emphasise the gamification of our content to lower barriers related to demographics and personal preferences. This approach reduces stereotype threats associated with certain subjects, making it easier for as many students as possible to participate effortlessly. We aim for schools to become increasingly excited about planning and collaborating with us year after year. We want students to engage with the program as if it were a leisure activity, transforming it into a valuable learning opportunity.

Preparation for Higher Education

By integrating Playconomics into their curriculum, high schools can better prepare students for university-level courses through the interconnection of syllabus outcomes to university course outcomes. The Playconomics platform's rigorous and comprehensive content ensures that students gain a deep and practical understanding of the subjects, which is broadly advantageous for university admissions. In addition, universities that adopt fully or partially Playconomics-based courses (including assessments) may also count students' high school coursework towards their university accreditation completion.

Engagement and Motivation

The interactive nature of Playconomics activities keeps students engaged and motivated throughout the program. The use of gamification and real-time feedback makes learning fun and rewarding, which encourages students to pursue further studies in related fields. By interacting with Playconomics game and Academia, students easily gain the ability to classify information, construct arguments, and demonstrate their understanding. They are highly motivated to continue their learning journey.

Program Development and Implementation

Alignment with Educational Standards

Playconomics courses have been developed over many years and align with current educational standards and best practices in education. The content is continually updated to reflect the latest research and developments in the field, which ensures that students receive a relevant and high-quality education. The exceptional potential of Playconomics is its ability to capture this quality education through a gamified channel, which students find engaging and memorable, while exposing them to multiple subjects in a truly multidisciplinary fashion. Also included in this document is Playconomics' connections to multiple Australian course syllabuses, further emphasising its close alignment with educational standards.

Flexible Curriculum Integration

High schools can integrate Playconomics courses into their existing curricula with ease. The platform offers a flexible structure that allows students to engage in self-led learning, which can occur outside the classroom or within, all dependent on teacher preferences. In addition, there are strong links between Playconomics courses and existing Australian high school syllabuses. Whether it can be used as a primary teaching tool or a supplementary

resource, it enhances educational understanding.

Playconomics is also highly multidisciplinary, and many of the lessons students will learn by playing the game will provide them with stronger problem-solving and critical thinking skills in a wide range of fields.

Key Assessment Strategies

1. Multiple-Choice Questions (MCQs henceforth): They test students' knowledge of fundamental concepts delivered in each chapter of Academia.
2. Short Answer Questions (SAQs henceforth): These require students to provide brief, focused responses. SAQs have the potential to also be peer marked by students that provides another layer of both learning and community building, as well as further taking some of the stress of coordinators and teachers.
3. The Playconomics Game: The immersive component of Playconomics (i.e., the video game) is designed to evaluate students' ability to apply theoretical economic concepts to real-world scenarios, with feedback provided in real time. Several Playconomics Planet Trials also allow students to focus on specific concepts in a “virtual lab” type of learning environment.

These assessment strategies help students demonstrate their understanding of key concepts, analyse situations, and justify their conclusions in a way that is personal and highly relevant. By using a wide variety of assessment tools, STEP UP courses are designed to ensure that all students have the opportunity to succeed.

The Future of the STEP UP Outreach

Expanding Horizons

We are continuously working to expand the reach of the STEP UP Education Outreach Program. By partnering with more schools and educational organisations, the program aims to bring the initiative to an even broader audience. Future plans include developing additional content, enhancing the platform's features, and exploring new ways to engage students in economics and business, engineering and medical education. This expansion will help more students develop critical thinking skills, and apply their knowledge in meaningful ways.

Ongoing Innovation

Innovation is at the heart of the STEP UP Education Outreach Program. We have been and will continue to be dedicated to maintaining the Playconomics platform at the forefront of educational technology, incorporating the latest advancements to improve the learning experience. This commitment to innovation ensures that the Playconomics game and Academia will continue to be valuable educational tools for years to come. In addition, staying up to date with educational trends and technological advancements allows the program to keep students engaged, motivated, and prepared for future challenges.

Resources and Support

The Playconomics Game

The Playconomics game has a focus on presence learning, allowing students to engage in a social, open-ended, and multidisciplinary course within a shared virtual world.

The key feature of the game is precisely this virtual world through which key concepts can be explored and discovered in real-time. This promotes social interaction and collaboration, providing a community-based learning approach.

The game also integrates various disciplines, emphasising real-world applications of various theories through the Planet Trials feature, which in turn improves the problem-solving and critical thinking skills of students.

Academia

Academia is a key part of the Playconomics platform that provides students with a comprehensive interactive experience that reinterprets standard Multiple Choice and Short Answer assessments.

Academia also features real-time data tracking of aggregate and disaggregate student performance easily accessible to both students and teachers. This element can greatly assist in assessing students' understanding of concepts and quickly identifying areas where they need further support, ensuring a thorough comprehension of the course material.

COURSE BLUEPRINTS

Detailed course blueprints available on the STEP UP Education Outreach Program webpage and in this publication outline all the necessary content and skills for each course. These blueprints organise the curriculum into manageable learning blocks, suggest pacing and sequence, scaffold skill development across units, and offer tips for succeeding in the program.

PROGRESS CHECKPOINTS

Each learning block includes formative questions that help students identify areas needing improvement. These Progress Checkpoints, accessible online, consist of multiple-choice questions (MCQs) with explanations for correct and incorrect answers, and short-answer free-response questions (SAQs) with scoring guidelines. As formative assessments, these checkpoints are designed solely for student self-improvement and not for grading or teacher evaluations unless desired otherwise.

PROGRESS MONITORING TOOL

This tool allows teachers to track the progress of their class and individual students throughout the program. Teachers can identify trends and pinpoint where students are struggling with content and skills relevant to the program. Students can also monitor their own progress to enhance their performance.

STEP UP EXAM QUESTION BANK

An extensive online repository of authentic exam questions - the STEP UP Exam Question Bank - allows teachers to access and create custom tests. These questions are categorised by course topics, enabling teachers to design practice tests that can be easily administered online or on paper. Students benefit from practising with real exam questions and receiving feedback on their responses.

GAME INTEGRATION

The Playconomics game is seamlessly integrated with Academia in the form of a progress dashboard. This dashboard allows coordinators to have a broad view of student

performance and skills and, as a result, adopt learning paths based on how students are progressing. This adaptive approach will personalise the educational journey, making learning more effective by aligning challenges and content with individual learning needs.

Digital Activation

Student Access

All STEP UP courses can be accessed through the Playconomics platform. To gain access, students will need to register for an account at playconomics.com to maintain their progress. As part of the registration process, they will be asked for an email address, which will become their username.

PROTECTING PRIVACY: To protect the students' identities and minimise opportunities for any third party to contact them directly, the STEP UP Outreach team will assign each participating student a random unique student ID and associated email address (e.g., z1234567 and z1234567@student.stepup.edu.au). These program-issued email addresses will be entirely non-functional except for their role in allowing students to register for and access the Playconomics platform. Teachers will provide these details to their students, who will only need to use these program credentials throughout the program.

Teacher Access

Teachers will undergo a similar digital activation process but will use their school-based email addresses to establish the link to their students on the Playconomics platform. Once the digital activation process is complete, students and teachers will have access to the complete suite of STEP UP courses available for a particular term, including all supplementary resources and support to facilitate learning. Teachers will also be able to track their students' progress online through digital reports sourced from the automatically collected data on the Playconomics platform. This data will provide a timely and readily available snapshot of individual progress, as well as the aggregate levels of engagement for each class.

Data Policy

We note that the data collected through the Playconomics platform during the STEP UP program will only be used to ensure the program's successful deployment and evaluate its impact. This data will only be reviewed in an anonymized format. Specifically, (1) a broad summary of the program progress and survey information, where available, that does not identify any participating schools and students, might be shared with institutions such as the Education Unit of the Reserve Bank of Australia, the NSW Department of Education, and other educational bodies, and (2) fully anonymized data might be used for secondary research purposes to evaluate the program's effects.

How to Sign Up

Students and teachers begin by signing up on playconomics.com to create their personal user account on the Playconomics platform. For students, this will be their program-issued email address. For teachers,

this will be their school-based email address. The sign-up process only needs to be completed once for students and teachers to have full access to the Playconomics platform and courses.

Once students and teachers create their playconomics.com account, they will immediately see the available STEP UP courses on their dashboard and, from there, will be able to access all the Playconomics resources (game and Academia) for each course.

ACTIVATION STEPS: Below is an example of the steps that a student may go through to complete digital activation and access Playconomics:

1. Register for an account at playconomics.com.
2. Select the STEP UP course that you would like or are registered by your teacher to take.
3. From the course dashboard you will be able to access the Playconomics game by clicking the “Download game” button; extract the game by right-clicking on the downloaded file and selecting "Extract All".
4. After extraction is complete, double click Playconomics.exe to launch the game; log into the game with the email address and password you used to register for your Playconomics account.
5. From the course dashboard you will also be able to access all the online course materials (including the ebook and educational videos), as well as the assessments by clicking the “Launch online course” button.
   - The course dashboard will also provide access to the pdf of the course textbook by clicking the “Access textbook” button; note that you can also download and keep the textbook pdf even after the program completion.
6. Note that students and teachers can access Playconomics at home or alternatively schools can set up free access PCs.

While the digital activation process takes a short time for student and teachers to complete, it helps save time and provides the following benefits:

- **Access to resources and support:** Teachers have access to resources specifically designed to support instruction and provide feedback to their students as soon as activation is complete.
- **Customisation:** Program coordinators will have access to chapters, surveys and scenarios so that they can customise the learning environment for participating students.
- **Student grouping:** Students can be categorised and sorted according to a wide variety of metrics via detailed leaderboards to easily see where a class is up to in content and skills.
- **Targeted reports:** Program coordinators will be able to generate overall reports that include data on each participating class in a timely manner. Teachers will be able to do the same for their classes.

Educational Plan

Our objective with the STEP UP Education Outreach Program is to offer a variety of viable and low-cost methods that require minimal effort from both students and teachers to access advanced material across a wide range of subjects.

Step 1: Play

IMMERSIVE PLAY: One of the most engaging ways to start the STEP UP Education Outreach Program is by diving directly into the Playconomics game. Designed to be self-explanatory, the game features built-in tutorials, eliminating the need for teacher preparation or scaffolding. This approach, termed "emergent learning," allows students to explore the game freely, blending leisure with education. Whether played in the classroom or at home, this immersive experience encourages exploration and spontaneous learning, similar to how students engage with games like Minecraft.

BUILDING A LEARNING COMMUNITY: The multiplayer aspect of the Playconomics game is particularly powerful, fostering a sense of community and collaboration. Students join and inhabit simulated planets together, motivating them to return to the game to see how their peers are progressing or to build something collectively. This social learning environment, where students co-create a persistent virtual world, promotes engagement and a sense of ownership over their learning experience.

A SELF DIRECTED ACHIEVEMENT SYSTEM: Playconomics is designed with a self-directed achievement system already incorporated to guide students through their learning journey. This system builds a scaffold of objectives that students need to achieve to progress in the game. The objectives are grouped into thematically relevant achievements, often tied to social development goals that encompass diverse subjects such as economics, business, engineering, science, and medicine. This cohesive approach helps students understand how large-scale problems can be addressed through interdisciplinary actions, reflecting the overarching goals of the STEP UP Education Outreach Program.

Guided by these achievement and objective systems (familiar to students from their experiences with other video games) students can progress through learning blocks and develop specific skills and abilities, even without direct instruction. The game's multiplayer environment provides a constantly changing landscape, offering endless scenarios and complex problems for students to solve. This naturally fosters applying concepts and skills in a way that mirrors real-world challenges.

The achievements themselves are considered valuable educational outcomes. They represent significant progress toward course completion, even before introducing more structured approaches like classroom instruction or traditional homework. This allows students to keep track of their progress in real-time and understand how their actions contribute to the learning goals.

COMMUNITY EVENTS: Additionally, students can participate in Planet Trials - timed events outside the persistent universe of the game. These events, scheduled around specific calendar dates, focus on particular concepts and offer opportunities

for collaboration and competition with other students. Planet Trials gently nudge students to explore multiple learning paths while providing an engaging scaffold for participation.

This system ensures that learning is both structured and enjoyable, blending educational objectives with the immersive and interactive nature of gaming, thereby enhancing students' overall learning experience.

NATIONAL TOURNAMENTS AND AWARDS: The game ensures complete anonymity while offering detailed aggregate (i.e., school-level) and disaggregate (i.e., individual-level) leaderboards. This setup enables us to host real-time national tournaments, highlighting top-performing individual students and showcasing teamwork at the school level. The inclusion of school-level leaderboards adds excitement, competition, and social networking to the gaming experience.

Crucially, the program prioritises minimising undue stress on students. To achieve this, both individual and school names are fully anonymized, preventing program participants from identifying specific winners or their associated institutions. Each year, we recognize and reward the highest achievers with a special UNSW ceremony held on campus to celebrate their accomplishments.

Step 2: Teacher Planning

After the initial exploratory phase, teachers can begin instructional design planning. They can review the course blueprints to identify specific learning blocks they wish to cover. These blueprints provide a comprehensive overview of the topics, concepts, and skills required for each learning block. Teachers can use this framework to develop a structured learning plan, incorporating suggested learning approaches that include both gameplay activities and traditional exercises such as multiple-choice and short-answer tasks.

Step 3: Active Teaching

The next step involves actively teaching the content. Teachers can use the resources available in Playconomics Academia and the game to integrate learning blocks into classroom instruction or as homework assignments. For instance, teachers might assign planet trials - competitive and cooperative exercises with specific objectives - to help students understand different concepts by comparing the outcomes of planets with slight variations, e.g., different tax systems or energy policies.

DISCUSSION AND ANALYSIS: Following the planet trials, teachers can facilitate classroom discussions to analyse the outcomes. Students can compare their experiences, discuss who performed well and why, and explore the impact of different modifiers on their planets. This phase helps students deepen their understanding by linking their in-game experiences to the concepts outlined in the course blueprints.

ASSIGNMENTS AND PEER LEARNING: Finally, teachers can also assign other specific homework tasks related to the game. These might include answering MCQs,

writing short essays on their gameplay experiences, or recording and analysing their play sessions. This open-ended assessment strategy encourages critical thinking and reflection. Peer learning can also be incorporated, where students review and discuss each other's work, significantly reducing the grading burden on teachers and exposing students to diverse perspectives.

By following these steps, the STEP UP Education Outreach Program creates a dynamic and engaging learning environment that blends interactive gameplay with rigorous academic content, fostering both enjoyment and educational growth.

Step 4: Track Progress

Students can check their measure of understanding within both the Playconomics game and Academia. Teachers also have access to Academia's admin tools to check a student's overall progress. Specifically,

- Planet leaderboards in the Playconomics game display each student's rank alongside other players based on certain success milestones.
- Playconomics platform converts a student's in-game progress into Play Coins, which is also displayed on Academia for a comprehensive view on one's progress.
- High school teachers and subsequently university lecturers can access Academia (and the Playconomics game) to check a student's progress within each course chapter and also view their Play Coins tally, their Student Metre rank, the Academia points accrued in MCQs and SAQs, as well as overall stats regarding their learning progress in the course.

Step 5: Test

Students can test their knowledge within Academia, where further learning support, MCQs and SAQs are located. Additionally,

- Learning support is readily available in the form of chapters that contain written and video explanation of principles and concepts.
- Each chapter further contains review and revision questions for students to attempt and check their understanding and knowledge.
- All review and revision questions are accompanied by detailed solutions for students to self-check their work and fill any gaps in their understanding.
- Additional practice questions are located in every chapter to provide a supplementary level of testing; these questions can also be used in the classroom as an extra resource.

The STEP UP Macroeconomics Course

The STEP UP Macroeconomics course is a university-level course that introduces students to the principles of economics that can be applied to the functions of economic decision-makers. This program also cultivates students' understanding of the operations of product and factor markets, distributions of income, market failure, and the role of government in promoting greater efficiency and equity in the economy. At the end of the course, students will be able to understand the key macroeconomic measures of economic activity, the dynamics of business cycles, how to break down the aggregate supply/aggregate demand model (AS-AD model), what is the role of money and the monetary policy, as well as quickly dive into fiscal policy and its impact on the economy among other things. Students learn to read and use graphs, analyse and graph data, and describe, explain and apply economic concepts. Furthermore this program can be integrated into Commerce, Business Studies and Economic subjects to elevate the learning experience of students.

University Course Equivalent

The STEP UP Macroeconomics course is equivalent to a one semester introductory university course in macroeconomics. The program is partnered with many universities such as the University of New South Wales and Monash University, where students in introductory courses use this game to learn the foundations of economics.

Students in high school undertaking this course will have completed and earned university course credits for ECON101: Macroeconomics, giving a head start for students pursuing economics in tertiary education, either as a full degree or as part of a Business and/or Commerce degree or as a general education course in their non-Business degree.

Prerequisites

There are no prerequisites for the STEP UP Macroeconomics course.

Students should only be able to read a university-level textbook and possess basic mathematics and graphing skills.

High schools have full discretion on adopting further requirements if necessary.

Our Collaborators

STEP UP Education Outreach Program: Macroeconomics

Program Framework

Introduction

The STEP UP Macroeconomics course integrates interactive gameplay with standard coursework to establish the essential concepts, skills, and knowledge that leading universities and higher education institutions consider when awarding credits for introductory economics courses.

This course is designed to equip students with the mindset of economists, enabling them to analyse scenarios and make decisions from the perspective of various types of economic agents. Through the immersive world of the Playconomics game, students can observe economic principles and models in action, experiencing firsthand the complexities of different economic setups, decision-making processes, and the emerging financial and economic outcomes. The course's flexible framework provides an innovative approach to learning economic content and skills, allowing the topics to evolve dynamically in response to real-world events rather than adhering to a rigid curriculum.

While the course is designed to offer a cutting-edge learning experience, it remains closely aligned with university-level outcomes and the high school curricula for Commerce, Business Studies, and Economics. The goal is to enhance and build upon the learning already taking place in the classroom. Additional resources and support are available to students through Academia, a comprehensive Learning Management Platform that facilitates self-directed study.

High school teachers have the flexibility to decide how much class time to allocate to this course and to the program overall, allowing them to tailor the experience to fit their specific educational objectives.

The course will be a useful option for students interested in pursuing any post-HSC schooling involving economics courses with partnered universities and institutions.

Course Blueprint:

Learning Blocks, Playing Blocks and Competencies

Our course blueprint emphasises two crucial aspects of the program: competencies and the structure of our learning / playing blocks.

Competencies

These refer to the abilities, skills, and capabilities essential for the study and practice of economics. These competencies are cultivated through active engagement with our educational process.

Learning Blocks

These can be understood as the course content, which we organise in a manner consistent with the standard approach employed by top universities and colleges worldwide. We present this content in a sequence that integrates it into a flexible learning environment. This is the type of content that universities and colleges expect students to master in order to succeed in these subjects.

Our content focuses on the major problems and challenges currently faced by the world. We break down these current topics into manageable building blocks, enabling students to perform informed analyses of the world around them. These building blocks are designed based on our extensive experience with university students and our discussions on the topics that resonate deeply with them. We strive to emphasise these topics as much as possible, as well as highlight the wide range of situations where they come into play. The ultimate goal of this program framework is to offer a comprehensive and precise outline of the requirements needed for student success.

Playing Blocks

The learning blocks outlined in this course blueprint are seamlessly integrated into a unified virtual environment within the Playconomics game. This allows students to visualise how these knowledge blocks interact with one another, a feature that is often lacking in standard educational designs. Typically, in conventional courses, students progress chapter by chapter, with new ideas and models replacing the old content. In contrast, the Playconomics game presents all the content blocks and knowledge simultaneously within a cohesive simulation. This approach offers students the unique opportunity to peruse the material and immediately apply the competencies they gained by making decisions in a dynamic environment. Success in this setting requires a blend of abilities, skills, and capabilities, thereby enhancing the learning experience.

Our course blueprint allows teachers to cross-match gameplay and standard learning blocks together in order to highlight the required content learning within both approaches, enhancing and reinforcing them both.

Program Content and Harmonisation

The STEP UP Education Outreach Program stands out from other similar initiatives due to its primary objective of maximising program accessibility for schools and students while minimising program participation costs.

Unlike many other outreach programs, each STEP UP course provides a comprehensive textbook available in both PDF and ebook formats. This textbook (1) is enhanced with videos that explain in great detail every graph derived in the text, and (2) also includes several hundreds of MCQs and SAQs - some directly integrated within the textbook chapters - to facilitate practice and testing for both teachers and students. Teachers have the flexibility to either customise the material or follow a well-organised course that mirrors the one currently offered at various higher education institutions. This ensures a seamless one-to-one experience comparable to university-level courses. In addition to the textbook, each STEP UP course includes the Playconomics game integrated with the e-book, as well as other educational content through Planet Trials and the self-directed achievement system.

Despite these unique features, we aim to provide an experience that is comparable to other established outreach programs, and harmonised with high school syllabuses. We detail how this is achieved below.

Link to the Advanced Placement (AP) Program

One of the most successful educational programs globally is the Advanced Placement (AP) Program offered by the U.S. College Board, which is employed by thousands of institutions, including nearly all colleges and universities in the US. While the AP Program does not provide any teaching content per se, it offers a framework that groups economic topics into units and outlines the skills students should develop during the AP program. To further reduce barriers to adoption and facilitate the use of the STEP UP program, in this document we show how the STEP UP Macroeconomics course textbook and assessments link to the AP course framework, including AP units and skills.

Teaching university-level economics is fairly standardised worldwide, so harmonising the STEP UP courses with the AP College Board framework is straightforward. On the other hand, there are three important benefits to creating this alignment. First, the institutions familiar with the AP structure can easily cross-reference our STEP UP

course content. Additionally, our competencies and unit structure will also align with the AP framework in a recognizable way, constructively guiding the deployment of the wide range of STEP UP assessment tools. Third, the AP unit structure is commonly used by universities and colleges globally, making it familiar even to those not acquainted with the AP program but who are familiar with standard university-level economics courses.

Link to NSW high school syllabuses

The STEP UP Macroeconomics content aligns fully with the objectives and topics required for the Commerce, Business Studies, and Economics high school syllabuses. This section illustrates how the outcomes related to these subjects are connected to the relevant content developed and deployed within the STEP UP program. For Commerce, the content directly intersects with the course objectives, enhancing students' understanding of the subject matter. Similarly, while Economics is not the primary focus of Business Studies, the material from the STEP UP program still supports the key objectives and topics covered in these classes. This intersection ensures that students can see the practical application of economic principles within the broader context of Business Studies. In the case of Economics, the connection (and effective overlap) is even stronger. The content from the STEP UP program closely embodies the objectives of the Economics syllabus, providing a robust foundation for students to explore and understand the concepts.

For more detailed information on these outcomes and their connection to the high school syllabus, please refer to the NESA website where the full syllabuses for Commerce, Business Studies, and Economics are available.

Link to Social Development Goals (SDGs) and Macroeconomics

One of the primary goals of the STEP UP outreach program is to develop a comprehensive set of courses that span multiple subjects while being interconnected through strong thematic threads. These themes reflect and are thus closely aligned with the major challenges that society faces today.

Each year, we ask our university students to identify the broad societal issues they believe economists should address. Consistently, topics such as social justice, income inequality, climate change, and poverty are at the forefront of their concerns.

Addressing these significant societal issues necessitates an interdisciplinary approach. This realisation underscored the need to integrate various subjects in a more cohesive and authentic manner than is typically achieved in traditional university settings.

To this end, we developed all the STEP UP courses with the overarching theme of demonstrating the importance of addressing the Sustainable Development Goals (SDGs) as critical objectives for our society. Consequently, our courses incorporate a set of objectives that are intertwined within all our subjects, also illustrating how these problems extend beyond just economics. For instance, our renewable energy and energy efficiency courses highlight the relevance of engineering in tackling these issues, which have broad and deep economic implications too.

Below we present a detailed list of self-directed assessment objectives and achievements related to the STEP UP Macroeconomics course. These demonstrate how various subjects are encapsulated within a singular video game environment and connected through the lens of the SDGs

Competencies

HARMONISED WITH AP "SKILLS"

The STEP UP Macroeconomics Competencies outline what a student should be capable of achieving in this course while exploring the program concepts. By closely aligning with the economic and business learning areas and learning continuums set forth by the Australian Curriculum, Assessment and Reporting Authority (ACARA), our program has identified several such key competences that students develop through the gamified education offered in the STEP UP Education Outreach Program.

In the table below, the STEP UP Microeconomics Competencies are presented alongside the ACARA General Capabilities that correspond to these competencies. These competencies form the basis of the tasks within the Playconomics game, and Academia's MCQs and SAQs.

The learning blocks detailed later in this document discuss the integration of these competencies throughout the STEP UP Microeconomics course, with Academia providing direct connections to the economic content. Students participating in the program can apply these competencies in their classrooms (for subjects such as economics, business studies, and commerce) and eventually in tertiary education courses.

Competence 1 Principles and Theories	**Competence 2** Economic Interpretations	**Competence 3** Situation Assessment	**Competence 4** Modelling Visualisation
Recognize and articulate economic principles and theories	Analyse and explain observed economic outcomes	Evaluate the outcomes of various economic scenarios	Represent economic scenarios using visual aids
SKILLS			
1.A Articulate economic ideas, principles, or theories. **1.B** Identify an economic idea, principle, or theory through a practical illustration, or using numerical data or computations. **1.C** Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	**2.A** Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories. **2.B** Disentangle multiple influencing factors to argue how a particular economic outcome is achieved or determine actions needed to achieve it, by applying economic ideas, principles, and theories. **2.C** Use numerical data or statistical analysis to analyse specific economic outcomes.	**3.A** Predict the result of an economic scenario using economic ideas, principles, or theories. **3.B** Assess the impact of changes in one or more economic markets. **3.C** Measure the impact of a change in an economic scenario using quantitative methods or calculations.	**4.A** Create an accurately labelled diagram or visual to depict an economic theory or market. **4.B** Illustrate your comprehension of a particular economic scenario using a well-labelled diagram or visual. **4.C** Depict the impact of a change in an economic scenario on a labelled diagram or visual.

Key Concepts

HARMONISED WITH AP "BIG IDEAS"

The foundational themes of the STEP UP Macroeconomics course serve as the pillars upon which students can build and link ideas. These recurring concepts, often abstract or thematic, interlace throughout the curriculum, creating a continuous thread of understanding. By encountering these themes in diverse scenarios, students are encouraged to strengthen their comprehension and integrate the material into a more unified whole. Below are the core themes of the course, each accompanied by a brief overview:

KEY CONCEPT 1: MACROECONOMIC INDICATORS (MCRI)

Economists develop metrics to track the condition of an economy and assess its progress over time. These measurements are frequently utilised by governments, businesses, and individuals to guide their decisions regarding policies, operations, and personal matters.

KEY CONCEPT 2: EXCHANGING GOODS AND SERVICES (EGS)

Competitive markets facilitate the interaction between buyers and sellers to trade goods and services for mutual benefit. The basic supply-demand model can be applied across various market scenarios.

KEY CONCEPT 3: MODELS IN MACROECONOMICS (MIM)

Macroeconomic models are simplified depictions that illustrate fundamental economic relationships. These models can predict and explain how these relationships respond to economic shocks.

KEY CONCEPT 4: MONETARY AND FISCAL POLICY (MFP)

Taxation and spending policies enacted by governments, along with monetary policy managed by central banks, can influence an economy's output, price levels, and employment levels over both the short and long terms.

Learning Blocks

HARMONISED WITH AP "UNITS"

The program is organised into blocks that are commonly taught in Macroeconomics courses. This logical sequence follows the layout of concepts within university-level units and as displayed in Playconomics Academia.

The ten chapters within Playconomics Academia have been adjusted into six blocks that highlight the path of learning within STEP UP Macroeconomics (displayed in table below). Students will be recommended to check Academia periodically to ensure they understand the amount of concepts and content they are working through within the game and check their understanding with review questions.
For teachers, these block overviews will highlight which high school syllabus outcomes and university outcomes students are accomplishing through their learning experience in the Playconomics game and Academia combined. Additionally teachers can use this overview to navigate and choose which concepts can be taken into the classroom, to be used as primary or supplementary material.

Each learning block is broken down into specific chapters that are explored in the Playconomics game and through the SAQs and MCQs in Academia. The topic pages will discuss the content, syllabus and university outcomes covered by the Playconomics game and Academia.

Learning Blocks	Assessment Weighting
Block 1: Basic Economic Theories	5-10%
Block 2: Economic Indicators and the Business Cycle	12-17%
Block 3: National Income and Price Determination	17-27%
Block 4: Financial Sector	18-23%
Block 5: Stabilisation Policies in the Long-Run	20-30%
Block 6: Global Trade and Finance	10-13%

Following the Key Concepts

Key Concepts	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6
	Basic Economic Theories	*Economic Indicators and the Business Cycle*	*National Income and Price Determination*	*Financial Sector*	*Stabilisation Policies in the Long-Run*	*Global Trade and Finance*
MACROECONOMIC INDICATORS MCRI		✓		✓	✓	✓
EXCHANGING GOODS AND SERVICES EGS	✓			✓		✓
MODELS IN MACROECONOMICS MIM	✓		✓		✓	
MONETARY AND FISCAL POLICY MFP			✓	✓	✓	

OUTREACH MACROECONOMICS

Program Resources at a Glance

In this section, we provide an overview of all program resources, including the textbook, the Playconomics game, and the standard assessments within Academia. We connect these resources to the competencies and key concepts discussed and developed in previous sections. For ease of reference, we summarise these key concepts and competencies in these tables:

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
MACROECONOMIC INDICATORS MCRI	EXCHANGING GOODS AND SERVICES EGS	MODELS IN MACROECONOMICS MIM	MONETARY AND FISCAL POLICY MFP

1	Competence 1: PRINCIPLES AND THEORIES
2	Competence 2: ECONOMIC INTERPRETATIONS
3	Competency 3: SITUATION ASSESSMENT
4	Competence 4: MODELLING VISUALISATION
MCRI	Key concept 1: MACROECONOMIC INDICATORS
EGS	Key concept 2: EXCHANGING GOODS AND SERVICES
MIM	Key concept 3: MODELS IN MACROECONOMICS
MFP	Key concept 4: MONETARY AND FISCAL POLICY

BLOCK 1
Basic Economic Theories

~9-11 Class Periods	12-15% Assess. Weighting

Gameplay

The Playconomics game is an educational simulation that immerses players in the complexities of real-world economics. Players manage resources like land, labour, and capital, making decisions that reflect economic concepts such as scarcity, trade-offs, and comparative advantage. The game emphasises strategic decision-making and allows players to experience the effects of their choices on both micro and macroeconomic levels.

Through its multiplayer environment, the Playconomics game introduces competition and cooperation, as players trade and interact in a global market. The game also features engaging visual tools to help players understand concepts like the production possibility curve and cost-benefit analysis, making it a dynamic platform for learning economic principles in an interactive and practical way.

MIcroeconomic Textbook (Ch.1 and 3)

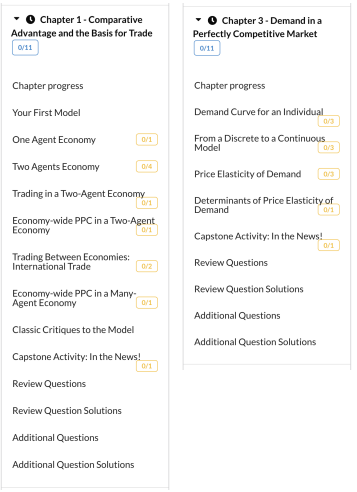
Ch.1

MIM 1	1.1 Scarcity: A Simple Model
MIM 4	1.2 Production Possibility Curve (PPC): One Agent Model
MIM 4	1.3 Production Possibility Curve (PPC): Two Agent Model
MIM 1	1.4 Cost-Benefit Principle: Trading in a Two-Agent Economy
MIM 4	1.5 Economy-wide PPC in a Two-Agent Economy
MIM 4	1.6 Trading Between Economies: International Trade
MIM 4	1.7 Economy-wide PPC in a Many-Agent Economy
MIM 1	1.8 Classic Critiques to the Model
	Review Questions
	Additional Questions

Ch.3

TMDM 2	3.1 Demand Curve for an Individual
RLM 4	3.2 From a Discrete to a Continuous Model
RLM 3	3.3 Price Elasticity of Demand
RLM	3.4 Determinants of Price Elasticity of Demand
3	Review Questions
	Additional Questions

Assessments



The textbook is available in both PDF format and online ebook. In addition to the textbook questions provided in the PDF, the ebook offers additional SAQs and MCQs, strategically placed in each chapter subsection. It also includes videos for deriving each graph presented in the book. The picture above shows the ebook, with the yellow notification indicating the number of questions the student has to complete in each subsection.

BLOCK 2
Economic Indicators and the Business Cycle

~13-15 Class Periods	20-25% Assess. Weighting

Gameplay

The Playconomics game provides a comprehensive simulation of the circular flow model by depicting the interactions among firms, households, governments, financial sectors, and international trade. The game tracks every transaction on screen, allowing players to observe the flow of savings, investments, taxes, government spending, and payments for imports and exports, as well as the distribution of income from firms to households. This clear representation helps players understand the complex dynamics of an economy in real-time.

Beyond traditional economic indicators like GDP, the Playconomics game also measures societal surplus, incorporating factors such as life satisfaction, mental health, and sustainability. The game goes beyond merely tracking market transactions to include elements like income distribution, education, health, and cultural activities that contribute to wellbeing. It also accounts for environmental degradation, leisure activities, black market operations, and technological advancements. By capturing these aspects, the Playconomics game offers a more holistic view of an economy, highlighting the importance of factors that GDP alone cannot measure, such as consumer surplus and human capital development.

Textbook (Ch 1-4)

Ch. 1

MCRI 1	1.1 Gross Domestic Product (GDP)
MCRI 1	1.2 Consumer Price Index (CPI)
	Review Questions
	Additional Questions

Ch. 2

MCRI 2	2.1 Labour Market Definitions and Data
MCRI 1	2.2 Economics Concepts of Unemployment
MIM 4	2.3 Competitive Model of the Labour Market
	Review Questions
	Additional Questions

Ch. 3

MFP 2	3.1 Interest Rates
MIM 3	3.2 Investment
MIM 3	3.3 National Saving
	Review Questions
	Additional Questions

Assessments

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BLOCK 3
National Income and Price Determination

~11-13 Class Periods	22-25% Assess. Weighting

Gameplay

The Playconomics game offers an immersive simulation that integrates both microeconomic and macroeconomic concepts through various in-game features. The Constellation Graph is a key tool that provides real-time visualisation of all market transactions, allowing players to intuitively grasp complex economic relationships. By incorporating elements like the tax multiplier and the effects of government policies, the game helps players understand how changes in expenditure, taxation, and other factors influence the broader economy. The game's focus on supply and demand, as well as the transition between short-run and long-run economic outcomes, is enhanced by detailed micro-foundations that are visually represented, making abstract concepts more tangible for players. The game also includes innovative features such as a tick system to simulate the passage of time, allowing players to observe market cycles and the impact of their decisions in both short-term and long-term contexts. The Playconomics game offers both single-player and multiplayer modes, providing a controlled environment for experimenting with economic policies and a more complex, unpredictable scenario when interacting with other players. By enabling players to implement fiscal policies and analyse their effects on the economy, the game delivers a comprehensive educational experience that captures the intricate dynamics of real-world economic systems.

Textbook (Ch.4-5 and 8)

Ch. 4

MIM 4	4.1 Aggregate Expenditure: Actual and Planned
MIM 4	4.2 Two-Sector Model: Households and Businesses
EGS 4	4.3 Open Economy Model
	Review Questions
	Additional Questions

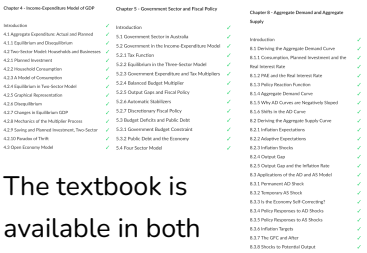
Ch. 5

MFP 2	5.1 Government Sector in Australia
MFP 4	5.2 Government in the Income Expenditure Model
MFP 3	5.3 Budget Deficits and Public Debt
MIM 4	5.4 Four Sector Model
	Review Questions
	Additional Questions

Ch.8

MIM 4	8.1 Deriving the Aggregate Demand Curve
MIM 4	8.2 Deriving the Aggregate Supply Curve
MIM 3	8.3 Applications of the AD and AS Model
	Review Questions
	Additional Questions

Assessments



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BLOCK 4
Financial Sector

~8-10 Class Periods	15-22% Assess. Weighting

Gameplay

The Playconomics game offers a comprehensive simulation of financial systems, capturing the movement of money through various levels of society, from individuals and businesses to governments. Players can engage in a dynamic economic environment where money is traded, borrowed, and lent across different entities, with the results reflected in real-time. The game incorporates a central banking system, allowing students to explore the relationship between nominal and real interest rates and how factors like inflation and price levels influence these rates. Although the current version does not yet include a detailed model of commercial banks or fractional reserve banking, future updates aim to introduce these elements, enhancing the learning experience. The game also delves into the complexities of the loanable funds market, where players can manage loans and savings across different sectors of the economy. By simulating the interplay between supply and demand for loanable funds, the game demonstrates the inverse relationship between interest rates and borrowing, as well as the positive correlation with savings. It also visualises the effects of monetary policies, though it currently offers a simplified version of these policies, with plans for more detailed central banking functions in the future. Through its detailed, micro-founded approach, the game provides a rich understanding of how monetary actions, government spending, and taxes influence interest rates and economic equilibrium in both closed and open economies.

Textbook (Ch.3, 6-7)

Ch. 3

MFP 2	3.1 Interest Rates
MIM 3	3.2 Investment
MIM 3	3.3 National Saving
	Review Questions / Additional Questions

Ch. 6

MFP 2	6.1 Asset Returns and Prices
MCRI 1	6.2 Definitions of Money
MFP 2	6.3 Demand for Money
MFP 2	6.4 Supply of Money
MCRI 1	6.5 Money, Prices and Inflation
	Review Questions / Additional Questions

Ch.7

MFP 2	7.1 Reserve Bank of Australia
MFP 3	7.2 Monetary Policy Decisions
MFP 2	7.3 Cash Rate and Long-Term Interest Rates
MFP 3	7.4 Monetary Policy Rules
	Review Questions / Additional Questions

Assessments

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BLOCK 5
Stabilisation Policies in the Long-Run

~6-8 Class Periods	10-13% Assess. Weighting

Gameplay

The Playconomics game offers an intricate simulation of economic principles, providing a micro-founded approach that vividly illustrates the combined effects of expansionary fiscal and monetary policies on key economic outcomes such as employment, price levels, and aggregate demand. Using features like the tick system, coin system, and in-game graphs, players can observe how these policies gradually influence the economy in real-time, tracking variables like output and interest rates. This immersive experience allows players to explore the transition from short-run to long-run scenarios, including the application of concepts like the Phillips curve, within both controlled single-player environments and dynamic multiplayer settings where simultaneous shocks can complicate outcomes.

Additionally, the game introduces players to critical financial concepts such as government debt, loans, and the crowding-out effect, where government borrowing impacts private sector investments. In multiplayer mode, students compete in a shared universe, striving for economic growth by enhancing productivity through investments in technology, capital, and human resources. The game also emphasises the role of public goods and government policies in fostering economic development, with real-time visual feedback on the impacts of infrastructure and public investments. Through this, players gain a deep understanding of economic growth, market dynamics, and the long-term effects of various economic policies, all while engaging in a simulated world that mirrors real-world economic challenges.

Textbook (Ch.5, 7-8 and 10)

Ch. 5

MFP 2	5.1 Government Sector in Australia
MFP 4	5.2 Government in the Income Expenditure Model
MFP 3	5.3 Budget Deficits and Public Debt
MIM 4	5.4 Four Sector Model
	Review Questions
	Additional Questions

Ch.7

MFP 2	7.1 Reserve Bank of Australia
MFP 3	7.2 Monetary Policy Decisions
MFP 2	7.3 Cash Rate and Long-Term Interest Rates
MFP 3	7.4 Monetary Policy Rules
	Review Questions
	Additional Questions

Ch.8

MIM 4	8.1 Deriving the Aggregate Demand Curve
MIM 4	8.2 Deriving the Aggregate Supply Curve
MIM 3	8.3 Applications of the AD and AS Model
	Review Questions
	Additional Questions

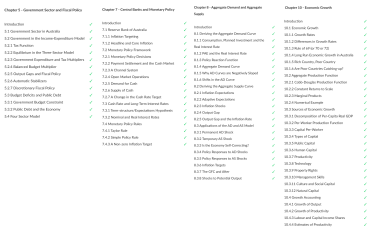
Ch. 10

MCRI 1	10.1 Economic Growth
MIM 4	10.2 Aggregate Production Function
MCRI 3	10.3 Sources of Economic Growth
MCRI 4	10.4 Growth Accounting

Review Questions

Additional Questions

Assessments



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BLOCK 6
Global Trade and Finance

~9-11 Class Periods	8-13% Assess. Weighing

Gameplay

The Playconomics game provides an immersive multiplayer environment where players can simulate and analyse the complexities of an open economy, including international trade and finance. Through the game's detailed tracking of net exports, net income from abroad, and net transfers, players can assess a country's current account status, understanding whether it is in surplus or deficit and how this affects the balance of trade. The game's innovative constellation graphs allow players to examine every transaction within the simulated world, offering insights into the relationships between buyers and suppliers, including cross-border money transfers between countries engaging in borrowing and lending.

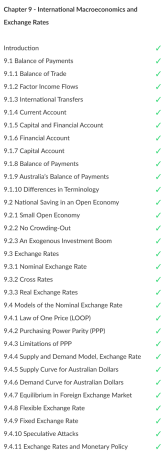
Although the current version of Playconomics does not yet feature different currencies for various countries, this addition is planned for future updates. This enhancement will further deepen players' understanding of international finance by incorporating exchange rates into the simulation. The ongoing development of the game aims to provide a more granular approach to financial markets, making it easier for players to comprehend the balance of payments and the broader implications of international economic interactions.

Textbook (Ch.9)

Ch. 9

EGS 2	9.1 Balance of Payments
EGS 4	9.2 National Saving and Investment in an Open Economy
EGS 1	9.3 Exchang_e Rates
EGS 4	9.4 Models of the Nominal Exchange Rate
	Review Questions/ Additional Questions

Assessments


Chapter 9 - International Macroeconomics and Exchange Rates

Introduction ✓
9.1 Balance of Payments ✓
9.1.1 Balance of Trade ✓
9.1.2 Factor Income Flows ✓
9.1.3 International Transfers ✓
9.1.4 Current Account ✓
9.1.5 Capital and Financial Account ✓
9.1.6 Financial Account ✓
9.1.7 Capital Account ✓
9.1.8 Balance of Payments ✓
9.1.9 Australia's Balance of Payments ✓
9.1.10 Differences in Terminology ✓
9.2 National Saving in an Open Economy ✓
9.2.1 Small Open Economy ✓
9.2.2 No Crowding-Out ✓
9.2.3 An Exogenous Investment Boom ✓
9.3 Exchange Rates ✓
9.3.1 Nominal Exchange Rate ✓
9.3.2 Cross Rates ✓
9.3.3 Real Exchange Rates ✓
9.4 Models of the Nominal Exchange Rate ✓
9.4.1 Law of One Price (LOOP) ✓
9.4.2 Purchasing Power Parity (PPP) ✓
9.4.3 Limitations of PPP ✓
9.4.4 Supply and Demand Model, Exchange Rate ✓
9.4.5 Supply Curve for Australian Dollars ✓
9.4.6 Demand Curve for Australian Dollars ✓
9.4.7 Equilibrium in Foreign Exchange Market ✓
9.4.8 Flexible Exchange Rate ✓
9.4.9 Fixed Exchange Rate ✓
9.4.10 Speculative Attacks ✓
9.4.11 Exchange Rates and Monetary Policy ✓

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Relevance to High School Syllabuses

Introduction

The STEP UP Education Outreach Program is considerate of the high school curriculum and the pre-established duties and responsibilities of secondary teachers. This program was designed to help support and elevate a teacher's resources when teaching Commerce in junior years and teaching Business Studies and Economics in senior years.

While this outreach initiative is predominantly an economics program, it achieves creating interconnections between syllabus outcomes for these subjects to Academia and the Playconomics game, bringing seamless integration into existing subject content. Furthermore, the program's self-led learning style allows for teachers to approach the program with the options to include resources within classroom activities or as a separate task present outside the classroom.

The following pages explore:

- Australian Curriculum content interconnected with Academia and the Playconomics game.
- NSW high school syllabuses for Commerce, Business Studies and Economics, and their interconnection of these subject's objectives and outcomes to Academia and the Playconomics game content.

Note that this section will be updated with the change of subject syllabuses when necessary.

Australian Curriculum: Economics and Business (Years 7-10)

The STEP UP Education Outreach Program is inclusive of both junior and senior high school education. Academia and the Playconomics game aim to embody the Australian Cirriculum's desire to help young Australians become successful, confident and creative individuals. Regarding this curriculum, there is a main focus on junior years of 7-10 in Economic and Business.

Within junior years of high school, the STEP UP Education Outreach Program aims to cultivate and empower students from all different socioeconomic backgrounds to shape their social and economic futures. Introducing students to the program early in their high school career will help form an individual's understanding of the influence of the Australian Government's decision-making and ability to provide explanations and strategies to tackle economic issues.

By the end of a student's journey within the program, they should be able to have a strong knowledge and understanding of:

- Economic indicators and its influence on economic decision-making
- The impact of government intervention to improve economic performance
- Factors that influence consumer and financial decisions, and the short and long term consequences
- Management of businesses to manage workforce and improve productivity

Skills developed within this program:

- Questioning and understanding economic and business issues
- Interpreting and analysing data and trends from simulated economic scenarios
- Communicating knowledge, explanations and decisions that affect an economic situation.

NSW Commerce Syllabus

OVERVIEW

Content from the Playconomics game and Academia also intersect with the objectives and topics required for Commerce. The following table highlights the outcomes related to the Business Studies objectives and outlines in their numbered form. These outcomes are then connected to relevant content developed from the Playconomics game and Academia.

For further information on these outcomes visit the NESA website to see the Commerce high school syllabus.

See the syllabus here: [Commerce 7–10 | NSW Education Standards]

Outcomes	Learning Blocks	Playconomics Game Content
Consumer, financial, economic, business, legal, political and employment matters		
COMLS-1 COMLS-2 COM4-1 COM5-1	**Block 1:** Basic Economic Theories **Block 4:** Financial Sector	• Explore various methods of obtaining goods and services within the game's local community market, simulating real-life economic transactions. • Apply consumer, financial, economic, business, legal, political, and employment concepts and terminology in diverse game contexts, reflecting real-world challenges and decision-making processes.
COMLS-3 COMLS-4 COMLS-5 COM4-2 COM5-2	**Block 5:** Stabilisation Policies in the Long-Run **Block 6:** Global Trade and Finance	• Investigate and address governmental issues such as budgeting, saving, and managing debt through interactive, real-life inspired challenges.
COMLS-6 COM4-3 COM5-3	**Block 1:** Basic Economic Theories	• Identify the role of law in society by participating in simulations where players must adhere to laws, regulations, and policies affecting government and business decisions.
Decision-making and problem-solving in relation to consumer, financial, economic, business, legal, political and employment issues		
COMLS-7 COMLS-8 COMLS-9 COM4-4 COM5-4	**Block 1:** Basic Economic Theories **Block 2:** Economic Indicators and the Business Cycle	• Make informed decisions in a variety of contexts, such as budgeting, investing, or choosing suppliers, by weighing pros and cons and considering potential outcomes in the game. • Direct agents to purchase goods and services within the game's virtual market, learning about consumer behaviour, price comparison, and the impact of purchasing decisions on government and business finances. • Identify and utilise financial services that assist in making decisions, such as loans and investment opportunities, to better manage resources and risks.
COMLS-10 COM4-5 COM5-5 COM4-6 COM5-6	**Block 1:** Basic Economic Theories **Block 4:** Financial Sector **Block 3:** National Income and	• Evaluate options for solving problems and issues by analysing the effectiveness, feasibility, and impact of various strategies within the game, leading to informed decision-making.

	Price Determination	
Effective research and communication		
COMLS-11 COM4-7 COM5-7 COMLS-12 COM4-8 COM5-8	**All Blocks:** Students analyse and answer questions to communicate appropriate decisions for business scenarios with an economic focus.	• Use strategies to locate and select information by navigating the game's virtual resources and databases to find relevant data and insights.
Working independently and collaboratively		
COMLS-13 COM4-9 COM5-9	**All Blocks:** Students work with fellow players to solve problems with an economic focus.	• Work independently and collaboratively to meet in-game goals within specified timeframes, managing personal tasks and coordinating with other players to achieve objectives in the game (e.g. reducing CO2 emissions).

NSW Business Studies Syllabus

OVERVIEW

While economics is not the main focus for Business Studies classes, content from the Playconomics game and Academia also intersect with the objectives and topics required for this subject. The following table highlights the Business Studies objects and outlines related outcomes in their numbered form. These outcomes are then connected to relevant content developed from the Playconomics game and Academia.

For further information on these outcomes visit NESA website to see the Business Studies high school syllabus in their entirety.

See the syllabus here: [Business Studies | NSW Education Standards]

Outcomes	Learning Blocks	Playconomics Game Content
The nature, role and structure of business		
P1, H1	**Block 1:** Basic Economic Theories **Block 2:** Economic Indicators and the Business Cycle	• Ability to control in real time core principles of business such as profit, employment, income, innovation, entrepreneurship and risk. • Players have the ability to construct economies that mirror real world countries, and make consequential decisions that have educationally valuable impacts on the simulation.
Internal and external influences on business		
P2, H2	**Block 2:** Economic Indicators and the Business Cycle **Block 6:** Global Trade and Finance	• External influences on business such as governmental regulation, geographic location, market forces and technological advancement. • Internal influences on businesses such as day-to-day management, access to resources and product decision making. • Globalisation and its effect on international markets. • Influence of rapidly changing technology on business efficiency • Effect of governmental regulation especially taxes and subsidies on businesses. • Implementation of policy decisions on environmental sustainability.
P3, H3	**Block 1:** Basic Economic Theories **Block 5:** Stabilisation Policies in the Long-Run	• Challenges at all stages of the business life cycle due to competition of market forces. • The rise and fall of businesses including solvency, bankruptcy and liquidation. • The employment contract: rights and obligations of employers and employees. • Anti-discrimination and equal employment opportunity.
The functions and processes of business activity		
P4, H4	**Block 6:** Global Trade and Finance	• Real-time management of key business functions based on dynamic market forces. • Differences in decision making for large and global businesses with regards to international trade, regulations and responsibilities.

Management strategies and their effectiveness		
P5, H5	**Block 4:** Financial Sector	• Implementation of different management approaches including planning, organising, controlling, hierarchical structure and various leadership styles. • Financial management choices informed by demand and supply. • Decision making regarding the short term and long term profitability of businesses.
P6, H6	**Block 4:** Financial Sector **Block 5:** Stabilisation Policies in the Long-Run	• The growth of a business from small to national to global. • Influences on the creation of a new business determined by personal qualities, sources of information, market forces, financial restrictions and governmental regulations. • Financial management choices informed by demand and supply. • Decision making regarding the short term and long term profitability of businesses.
Investigate, synthesise and evaluate contemporary business issues and hypothetical and actual business situations		
P7, H7	**Block 1:** Basic Economic Theories **Block 3:** National Income and Price Determination	• External influences on business such as governmental regulation, geographic location, market forces and technological advancement. • Controlling business operations including purchasing new equipment, redundancy, inertia, payments and research and development. • Reaction to global factors such as global sourcing, economies of scale and market power.
P8, H8	**Block 1:** Basic Economic Theories **Block 4:** Financial Sector	• External influences on business such as governmental regulation, geographic location, market forces and technological advancement. • Internal influences on businesses such as day-to-day management, access to resources and product decision making. • Interaction with various different markets including resource, industrial, intermediate, consumer, mass and niche. • Financial management choices informed by profits, debt and equity.
Communicate business information and issues using appropriate formats		
P9, H9	**All Blocks:** Students analyse and answer questions to communicate appropriate decisions for business scenarios with an economic focus.	• Playconomics uses an interactive virtual world in which students can demonstrate their acquisition of economic knowledge and skills in a more engaging way than standard assessment-based pathways.
Apply mathematical concepts appropriate to business situations		
P10, H10	**All Blocks:** Students engage with mathematical equations and economic graphs to analyse and understand economic situations for different hypothetical businesses.	• Ability to constantly monitor market graphs leading to trend analysis, identifying and sustaining competitive advantage and avoiding overextension of finance and other resources. • Optional mathematical exploration of game data to better inform gameplay decisions. • Business loans and repayments. • Monitoring and controlling business income and outgoing expenditure over time. • Utilising game data to measure business success using techniques such as

	comparative ratio analysis. • Capital Management factors are highlighted such as businesses assets liabilities and potential strategies to guide the player.

NSW Economics Syllabus

OVERVIEW

Content from Academia and the Playconomics game intersect with the objectives and topics required for Economics very closely. The following table highlights the Economics objectives and outlines related outcomes in their numbered form. These outcomes are then connected to relevant content developed from Academia and the Playconomics game. For further information on these outcomes visit NESA website to see the Business Studies high school syllabus in their entirety.

See the syllabus here: [Economics | NSW Education Standards]

Outcomes	Academia Course Content	Playconomics Game Content
The economic behaviour of individuals, firms, institutions and governments		
P1, H1	**Block 1:** Basic Economic Theories	• Control real-time business principles such as profit, employment, and innovation, demonstrating understanding of economic terms and concepts.
P2, H2	**Block 2:** Economic Indicators and the Business Cycle	• Make economic decisions related to budgeting, investing, and consumer behaviour, highlighting the government's role in the economy. • Control and manage firms by making decisions on production, supply, pricing, and innovation, reflecting their economic impact on markets. • Implement and respond to governmental regulations, taxes, subsidies, and policies affecting business operations and market outcomes.
The function and operation of markets		
P3, H3	**Block 1:** Basic Economic Theories **Block 6:** Global Trade and Finance	• Engage in international trade within the game, making decisions on importing and exporting goods and services, and observing the impact on global market prices. • Investigate how markets are interconnected globally, with changes in one market affecting others, and the role of multinational corporations in the global economy.
The operation and management of economies		
P4, H4	**Block 6:** Global Trade and Finance	• Examine differences in market structures (e.g., perfect competition, monopoly, oligopoly) across various economies. • Contrast how different economies handle market failures and government interventions.
P5, H5	**Block 5:** Stabilisation Policies in the Long-Run	• Analyse and implement policies to deal with market failures, such as externalities, public goods, and income inequality.
P6, H6	**Block 5:** Stabilisation Policies in the Long-Run	• Engage in discussions and debates within the game on the merits and drawbacks of various policy options, using data and outcomes to support arguments.
Contemporary economic problems and issues facing individuals, firms and governments		

P7, H7	**Block 1:** Basic Economic Concepts **Block 5:** Stabilisation Policies in the Long-Run	• Analyse how changes in supply and demand due to contemporary issues (e.g., supply chain disruptions, shifts in consumer behaviour) impact market equilibrium and prices. • Adapt your strategy to cope with economic issues such as fluctuating demand, resource scarcity, and regulatory changes.
P8, H8	**Block 1:** Basic Economic Theories	• Use foundational economic terminology and concepts (e.g., opportunity cost, comparative advantage) in various game scenarios to make informed decisions. • Students that have a better understanding of economic theory will naturally excel within the game, as they are knowledgeable on the underlying causes of problems, and the reasons for their society's successes.
Investigate and engage in effective analysis, synthesis and evaluation of economic information from a variety of sources		
P9, H9	**Block 3:** National Income and Price Determination	• Select and organise data on production costs, resource allocation, and efficiency to make informed decisions in a competitive market. • Filter and prioritise information based on its relevance to current objectives and challenges within the game.
P10, H10	**Block 4:** Financial Sector	• Develop internal policy proposals to address market failures, using data-driven arguments.
P11, H11	**All Blocks:** Students engage with mathematical equations and economic graphs to analyse and understand economic situations for different hypothetical businesses.	• Ability to constantly monitor market graphs leading to trend analysis, identifying and sustaining competitive advantage and avoiding overextension of finance and other resources. • Optional mathematical exploration of game data to better inform gameplay decisions. • Utilising game data to measure business success using techniques such as comparative ratio analysis. • Capital Management factors are highlighted such as businesses assets liabilities and potential strategies to guide the player.
Communicate economic information, ideas and issues in appropriate forms		
P12, H12	**All Blocks:** Students work with fellow players to solve problems with an economic focus.	• Work independently and collaboratively to meet in-game goals within specified timeframes, managing personal tasks and coordinating with other players to achieve objectives in the game (e.g. reducing CO2 emissions).

Social Development Goals, Microeconomics, HS Syllabus

LINKS TO OUR SELF-DIRECTED VIDEO GAME ACHIEVEMENT SYSTEM

This section of the document is highly adaptable and subject to frequent updates. This flexibility stems from the ongoing nature of the Playconomics game development, where continuous improvements and new features are implemented term after term. Our early access model allows us to regularly introduce significant milestones that not only expand the range of subjects we gamify but also enhance gameplay functionalities, achievements, and goals. To stay current with the latest developments and achievements in the game, please refer to this link. The table will be updated frequently over the coming months and years. Although we will routinely update this document, this specific section is likely to undergo more frequent changes.

STEP UP Outreach Program (MICROECONOMICS, MACROECONOMICS)	Syllabus (COMMERCE [COM5], BUSINESS STUDIES [BUS], ECONOMICS [ECO])	SDG	Objective	Reward	Learning – Connecting Sources to Gameplay
Topic 1.1 Scarcity Define resources and explain the reasons for their scarcity. SMKT-1.A Define resources and explain the causes of their scarcity.	COM5-1,2,3 Consumer, financial, economic, business, legal, political and employment matters COM5-1 applies consumer, financial, economic, business, legal, political and employment concepts and terminology in a variety of contexts COM5-2 analyses the rights and responsibilities of individuals in a range of consumer, financial, economic, business, legal, political and employment contexts COM5-3 examines the role of law in society	SDG 8: Decent Work and Economic Growth, 8.4: Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead.	(Target 11.7) Purchase 10 extra terrain tiles.	Receive 1 free terrain tile.	Students are first introduced to the concept of scarcity through terraforming, where buying extra tiles comes at a monetary cost to their government.
Topic 1.2 Managing Resources Most resources are limited, and their use typically involves constraints and trade-offs. SMKT-1.B Explain how the economic system chosen by a society affects resource allocation.	ECO-H4,H5,H6 The operation and management of economies ECO-H4 analyses the impact of global markets on the Australian and global economies ECO-H5 discusses policy options for dealing with problems and issues in contemporary and hypothetical contexts ECO-H6 analyses the impact of economic policies in theoretical and contemporary Australian contexts	SDG 7: Affordable and Clean Energy, 7.1: By 2030, ensure universal access to affordable, reliable, and modern energy services. SDG 7: Affordable and Clean Energy, 7.3: By 2030, double the global rate of improvement in energy efficiency. SDG 12: Responsible Consumption and Production, 12.1: Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries. SDG 12: Responsible Consumption and Production, 12.2: By 2030, achieve the sustainable management and efficient use of natural resources. SDG 12: Responsible Consumption and Production	(Target 8.4) Increase GDP in the same moment that you've also increased natural resource supply.	Renew all your renewable natural resource tiles (fish, forest) to full.	Students learn the responsible consumption of renewable resources.

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OUTREACH MACROECONOMICS

Learning Blocks Guides

HARMONISED WITH AP “UNITS”

In this section, we connect the content from our textbook to a series of learning blocks that align with the AP units. This approach simplifies the process of identifying and understanding the links between our programs. The learning block guides are designed to serve as a potential pathway or structure for teachers, offering a suggested sequence for delivering the content. Each topic and sequence is carefully linked to the competencies and key concepts introduced in the previous section, ensuring clarity regarding the educational objectives to focus on as one progresses through the material. Additionally, these guides include links to formative assessments, integrated within the ebook, to enhance usability and provide further support. The guides have been organised so there is an overarching unit overview that outlines:

- Learning Journey
- Associated **Key Concepts**
- Building **Competencies**
- The learning block at a glance

Using the Learning Blocks Guides

Unit Introduction

Developing Understanding

This section offers a summary that places the core content of the learning block within the broader context of the course.

Building Competencies

Here you'll learn how the competencies taught in this block apply to the textbook, as well as how the game enhances students' experience.

Planet Trials and Academia

This section explains how both Playconomics and Academia work hand-in-hand to deliver the content seamlessly and in an engaging manner.

Key Concepts

The Key Concepts are important economic concepts that are covered in the unit, and provide a quick-start way to understand what will be taught.

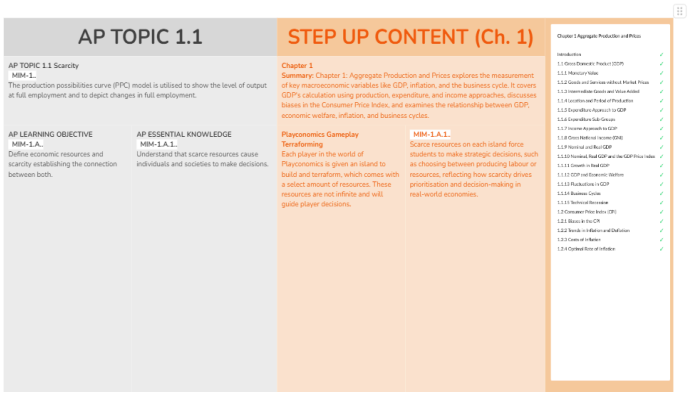
Learning Block at a Glance

This page offers a short overview of the topics covered in this unit, and of their assessment weighting.

Main Gameplay Activities

The table on this page will clearly explain what game mechanics Playconomics uses to convey the Key Concepts and topics covered within this learning block. Look here for information on how playing a video game can be equally as valuable a learning experience as it is fun and engaging.

Topic Pages



Topic Focus

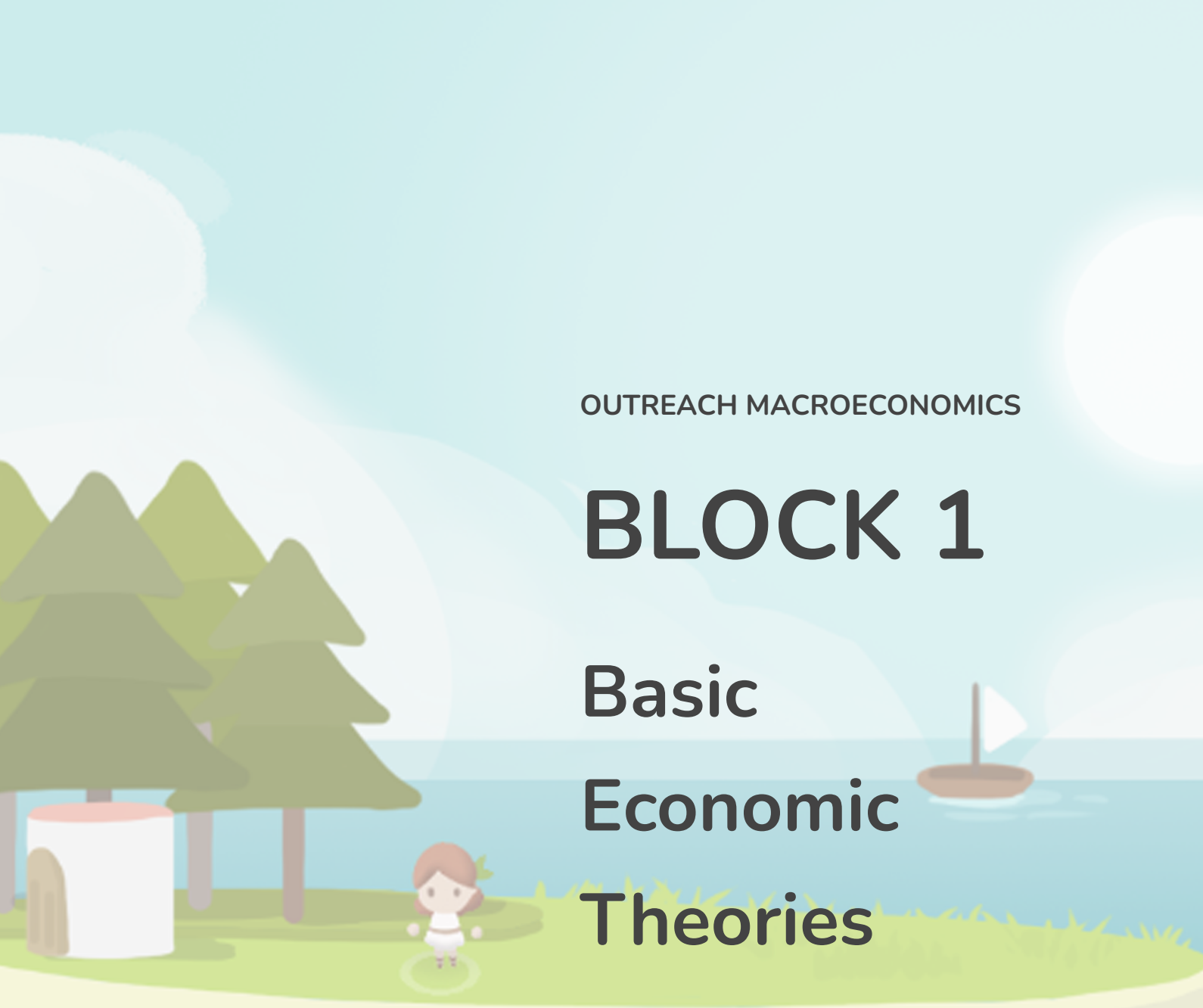
Short explanation of what this topic will discuss. Usually only one or two sentences.

Learning Intention and Success Criteria

This provides a guide to what students will learn at the end of this topic.

Playconomics Gameplay

On the side of each topic page is a column for gameplay, where the relevant mechanics features in the Main Gameplay Activities page are highlighted.



OUTREACH MACROECONOMICS

BLOCK 1

Basic Economic Theories

5-10%

ASSESSMENT WEIGHTING

~8-10

CLASS PERIODS

BLOCK 1: Basic Economic Theories

HARMONISED WITH AP "UNITS"

5-10%	~8-10
ASSESSMENT WEIGHTING	CLASS PERIODS

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
MACROECONOMICS INDICATORS MCRI	EXCHANGING GOODS AND SERVICES EGS	MODELS IN MACROECONOMICS MIM	MONETARY AND FISCAL POLICY MFP

BLOCK 1: Basic Economic Theories

HARMONISED WITH AP “UNITS”

Learning Journey	Competencies	Assessments
For students to grasp economics, it is essential they first recognize that resources are limited, which forces both individuals and societies to make choices. By exploring the reasons behind these choices, students will begin to comprehend the core principles of supply and demand, as well as the importance of specialisation and trade. Alongside introducing these foundational economic ideas, this block lays the groundwork with essential models that will be crucial for more complex economic analysis in future blocks.	This block is dedicated to ensuring students gain a solid foundation in fundamental economic concepts, allowing them to apply these ideas with greater depth in later units. Mastery of economic principles and models is a critical skill that will be built upon throughout the course. Given that many students might not have had extensive exposure to economics before, the tools and methods of economic analysis might feel unfamiliar at first. Therefore, it’s important to provide numerous opportunities from the start for students to articulate economic ideas and apply their understanding using both graphs and numerical methods. Demonstrating early on how graphs serve as powerful tools to interpret and predict economic outcomes will be beneficial - even if a graph isn’t explicitly required for an exam, creating one might help students better analyse or explain a scenario.	The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they’ve been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they’ll face unique restrictions and objectives. Their results will be showcased on Academia’s homepage, with Play Coins earned from their performance being tracked and collected.

Links to AP Units, Competencies and Key Concepts

AP Macroeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
1.1 Scarcity	**Chapter 1 - Aggregate Production and Prices**	1.A Articulate economic ideas, principles, or theories.	MODELS IN MACROECONOMICS (MIM-1)
1.2 Opportunity Cost and the Production Possibilities Curve (PPC)	**Chapter 1 - Aggregate Production and Prices**	1.A Articulate economic ideas, principles, or theories.	MODELS IN MACROECONOMICS (MIM-1)
1.3 Comparative Advantage and Gains from Trade	**Chapter 1 - Aggregate Production and Prices**	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	MACROECONOMIC INDICATORS (MCRI-1)
1.4 Demand	**Chapter 1 - Aggregate Production and Prices**	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	MACROECONOMIC INDICATORS (MCRI-2)
1.5 Supply	**Chapter 1 - Aggregate Production and Prices**	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	MACROECONOMIC INDICATORS (MCRI-2)
1.6 Market Equilibrium, Disequilibrium, and Changes in Equilibrium	**Chapter 3 - Demand in a Perfectly Competitive Market**	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	MACROECONOMIC INDICATORS (MCRI-2)

MAIN GAMEPLAY ACTIVITIES

Playconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Macroeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
1.1 Scarcity	Chapter 1 - Comparative Advantage and the Basis for Trade	**Terraforming** Each player in the world of Playconomics is given an island to build and terraform, which comes with a select amount of resources. These resources are not infinite and will guide player decisions.

1.2 Opportunity Cost and the Production Possibilities Curve (PPC)	**Chapter 1 - Comparative Advantage and the Basis for Trade**	**Multiple Planets Economy** In Playconomics, different planets coexist with a variety of economic models, all unique to the players that inhabit each one. Each of these economies affect the resources being allocated and prioritised. Players can compare outcomes across counterfactual analysis.	**In-game Graphs** Playconomics features a wide variety of graphs through which players can analyse and evaluate their economy. These graphs often illustrate the concepts of scarcity, opportunity cost, efficiency, underutilised resources, and economic growth.
1.3 Comparative Advantage and Gains from Trade	**Chapter 1 - Comparative Advantage and the Basis for Trade**	**International Trade** Specialisation and trade are crucial parts of Playconomics. Very often, they are influenced by the climate and biome your player character has chosen to settle in. Players build their societies on an Earth-like planet, where certain regions are predisposed to natural resources. These resources are then traded internationally, promoting specialisation.	**Market Graphs** The player islands in Playconomics form a microcosm of our global economic reality, where different islands have comparative advantages over each other thanks to the makeup of their local markets. For example, one island may have a comparative advantage over a more highly developed one in the form of cheap labour.
1.4 Demand	**Chapter 1 - Comparative Advantage and the Basis for Trade**	**Workers, Firms, Retirees** Demand and supply is a cornerstone of Playconomics - it is fundamental to progression and learning. All of the markets in Playconomics are built off demand and supply that players have intentionally added and removed. Very often players will have to react to this changing market, by balancing demand, supply and price.	**Market Graphs** The player islands in Playconomics form a microcosm of our global economic reality, where different islands have comparative advantages over each other thanks to the makeup of their local markets. For example, one island may have a comparative advantage over a more highly developed one in the form of cheap labour.

1.5 Supply	Chapter 1 - Comparative Advantage and the Basis for Trade	**Workers, Firms, Retirees** Demand and supply is a cornerstone of Playconomics - it is fundamental to progression and learning. All of the markets in Playconomics are built off demand and supply that Players have intentionally added and removed. Very often players will have to react to this changing market, by balancing demand, supply and price.	**Agent decision-making** The agents that populate a player island in Playconomics completely rely on cost benefit analysis. Decisions require resources for short and long term payouts and these resources may be better utilised elsewhere. These decisions range from what type of food to eat, whether to work or rest and whether to hire or fire.
1.6 Market Equilibrium, Disequilibrium, and Changes in Equilibrium	Chapter 3 - Demand in a Perfectly Competitive Market	**Market Equilibrium** All players playing Playconomics have free reign to construct their society how they please, but they are connected to a much larger, macroeconomic ecosystem. As a result, markets often transition between different equilibria as players add and remove consumers and producers.	**Outbidding and Undercutting** Players have the opportunity to decide their agents will outbid markets to obtain a resource over others, or undercut markets so that they might be hired over other workers. This will have a knock-on effect to influence the global market, and other consumers and producers will have to update their pricing policy to conform or drop out.

AP TOPIC 1.1

AP TOPIC 1.1 Scarcity

MIM-1

The production possibilities curve (PPC) model is utilised to show the level of output at full employment and to depict changes in full employment.

AP LEARNING OBJECTIVE

MIM-1.A

Define economic resources and scarcity establishing the connection between both.

AP ESSENTIAL KNOWLEDGE

MIM-1.A.1

Understand that scarce resources cause individuals and societies to make decisions.

STEP UP CONTENT (Ch. 1)

Chapter 1

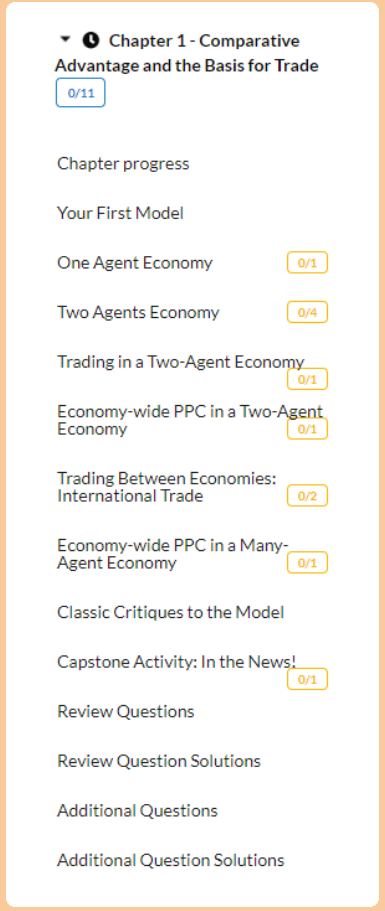
Summary: Chapter 1: Aggregate Production and Prices explores the measurement of key macroeconomic variables like GDP, inflation, and the business cycle. It covers GDP's calculation using production, expenditure, and income approaches, discusses biases in the Consumer Price Index, and examines the relationship between GDP, economic welfare, inflation, and business cycles.

Playconomics Gameplay Terraforming

Each player in the world of Playconomics is given an island to build and terraform, which comes with a select amount of resources. These resources are not infinite and will guide player decisions.

MIM-1.A.1

Scarce resources on each island force players to make strategic decisions, such as choosing between producing labour or resources, reflecting how scarcity drives prioritisation and decision-making in real-world economies.



AP TOPIC 1.2

AP TOPIC 1.2 Opportunity Cost and the Production Possibilities Curve (PPC)

MIM-1

The production possibilities curve (PPC) model is employed to illustrate the level of output at full employment and to demonstrate changes in full employment.

AP LEARNING OBJECTIVE

MIM-1.B

A. Define the PPC and related terms, using graphs as needed.

B. Explain how the PPC illustrates opportunity costs, trade-offs, inefficiency, efficiency, and economic growth or contraction under different conditions, using graphs as appropriate.

C. Calculate opportunity cost using data from PPCs or tables as necessary.

AP ESSENTIAL KNOWLEDGE

MIM-1.B.1

Comprehend that the PPC model demonstrates the trade-offs involved in resource allocation.

MIM-1.B.2

Illustrate concepts of scarcity, opportunity cost, efficiency, underutilised resources, and economic growth or contraction using the PPC.

MIM-1.B.3

Understand that the shape of the PPC is influenced by whether opportunity costs are constant, increasing, or decreasing.

MIM-1.B.4

Acknowledge that the PPC can shift due to changes in factors of production and changes in productivity or technology.

MIM-1.B.5

Know that economic growth leads to an outward shift of the PPC.

STEP UP CONTENT (Ch. 1)

Chapter 1

Summary: Chapter 1: Aggregate Production and Prices explores the measurement of key macroeconomic variables like GDP, inflation, and the business cycle. It covers GDP's calculation using production, expenditure, and income approaches, discusses biases in the Consumer Price Index, and examines the relationship between GDP, economic welfare, inflation, and business cycles.

Playconomics Gameplay

Multiple Planets Economy

In the game, different planets coexist with a variety of economic models, all unique to the players that inhabit each one. Each of these economies affect the resources being allocated and prioritised. Players can compare outcomes across counterfactual analysis.

In-game Graphs

The game features a wide variety of graphs through which players can analyse and evaluate their economy. These graphs often illustrate the concepts of scarcity, opportunity cost, efficiency, underutilised resources, and economic growth.

MIM-1.B.1

Students compare different planets' economies, observing how resource allocation leads to trade-offs, reflecting the PPC model's demonstration of these trade-offs.

MIM-1.B.2

In-game graphs illustrate scarcity, opportunity cost, efficiency, underutilised resources, and economic growth. Students use PPC concepts to analyse each planet's economy.

MIM-1.B.3

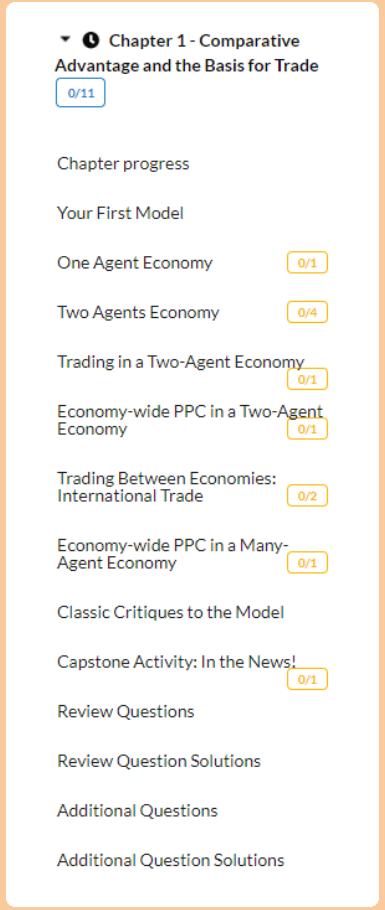
Students analyse PPC shapes through a streamlined UI across planets, understanding how opportunity costs affect resource allocation.

MIM-1.B.4

Students correctly relate PPC shifts in the game world to changes in factors of production, productivity, or technology that they or a fellow student have created in real-time.

MIM-1.B.5

Students will recognise that economic growth on planets leads to outward shifts of the PPC, demonstrating the impact of growth on resource availability and allocation.



AP TOPIC 1.3

AP TOPIC 1.3 Comparative Advantage and Gains from Trade

MCRI-1

Engaging in trade leads to an increase in both production and consumption

AP LEARNING OBJECTIVE

MCRI-1.A

A. Define absolute advantage and comparative advantage.
B. Using data from PPCs or tables as needed, determine absolute and comparative advantage.

MCRI-1.B

A. Explain how specialisation based on comparative advantage, with appropriate terms of trade, can lead to gains from trade, using data from PPCs or tables as needed.
B. Calculate mutually beneficial terms of trade using data from PPCs or tables as appropriate.

AP ESSENTIAL KNOWLEDGE

MCRI-1.A.1

Know that absolute advantage refers to a situation where an individual, business, or country can produce more of a good or service than any other producer using the same quantity of resources.

MCRI-1.A.2

Know that comparative advantage refers to a situation where an individual, business, or country can produce a good or service at a lower opportunity cost compared to another producer.

MCRI-1.B.1

Understand that specialising production based on comparative advantage creates exchange opportunities that enable consumption beyond the PPC.

MCRI-1.B.2

Recognise that comparative advantage and opportunity costs establish the terms of trade for exchange, facilitating mutually beneficial trade.

STEP UP CONTENT (Ch. 1)

Chapter 1

Summary: Chapter 1: Aggregate Production and Prices explores the measurement of key macroeconomic variables like GDP, inflation, and the business cycle. It covers GDP's calculation using production, expenditure, and income approaches, discusses biases in the Consumer Price Index, and examines the relationship between GDP, economic welfare, inflation, and business cycles.

Playconomics Gameplay

International Trade

Specialisation and trade are crucial parts of the game. Very often, they are influenced by the climate and biome your player character has chosen to settle in. Players build their societies on an Earth-like planet, where certain regions are predisposed to natural resources. These resources are then traded internationally, promoting specialisation.

Market Graphs

The player islands in the game form a microcosm of our global economic reality, where different islands have comparative advantages over each other thanks to the makeup of their local markets. For example, one island may have a comparative advantage over a more highly developed one in the form of cheap labour.

MCRI-1.A.1

The climate system in the game, where certain islands have natural predispositions to markets, is indicative of absolute advantage.

MCRI-1.A.2

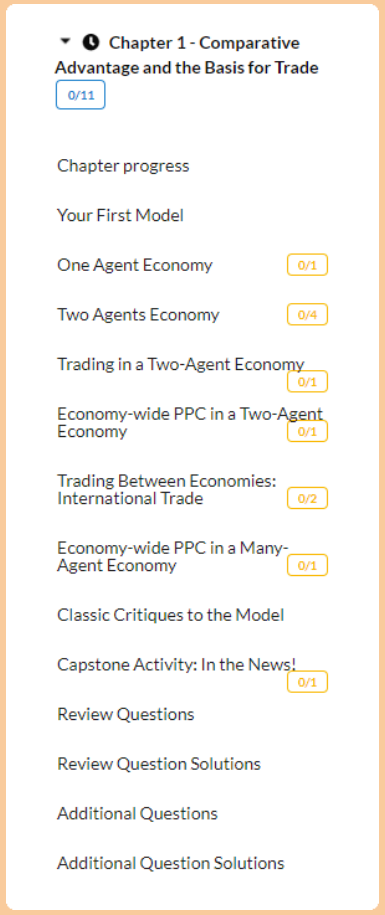
Comparative advantage can also be seen through the climate system, where producing for a certain market on a player's island may have a lower opportunity cost than another's.

MCRI-1.B.1

As these islands can interact, islands with comparative advantages will naturally engage in international trade.

MCRI-1.B.2

All islands on a planet have the opportunity to trade, and have both absolute and comparative advantage, setting the global economy up for mutually beneficial trade.



AP TOPIC 1.4

AP TOPIC 1.4 Demand

MCRI-2

The effects of scarcity can be alleviated through production specialisation and exchange.

AP LEARNING OBJECTIVE

MCRI-2.A

A. Define the law of demand, using graphs as necessary.
B. Explain the relationship between the price of a good or service and the quantity demanded, using graphs as needed.

MCRI-2.B

Utilising graphs when possible, explain the determinants of demand.

AP ESSENTIAL KNOWLEDGE

MCRI-2.A.1

Understand that the law of demand asserts that as the price of a good or service increases, the quantity demanded decreases, resulting in a downward-sloping demand curve.

MCRI-2.B.1

Comprehend that changes in consumer income and other factors influencing consumer demand can shift the market demand curve.

STEP UP CONTENT (Ch. 1)

Chapter 1

Summary: Chapter 1: Aggregate Production and Prices explores the measurement of key macroeconomic variables like GDP, inflation, and the business cycle. It covers GDP's calculation using production, expenditure, and income approaches, discusses biases in the Consumer Price Index, and examines the relationship between GDP, economic welfare, inflation, and business cycles.

Playconomics Gameplay

Workers, Firms, Retirees

Demand and supply is a cornerstone of the game - it is fundamental to progression and learning. All of the markets in the game are built off demand and supply that players have intentionally added and removed. Very often players will have to react to this changing market, by balancing demand, supply and price.

Market Graphs

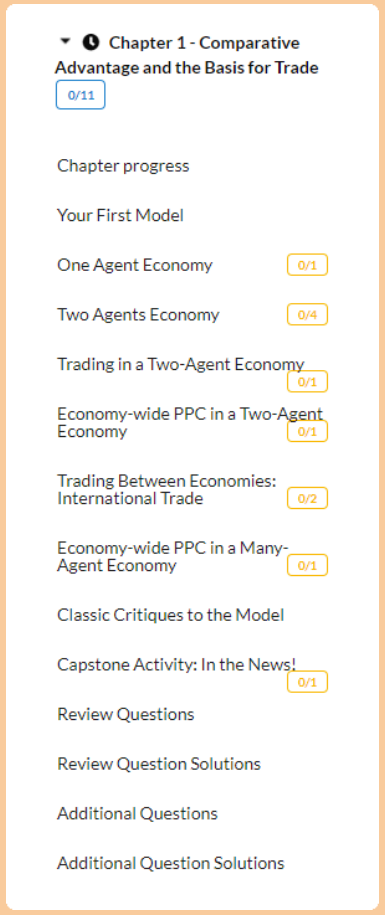
The player islands in the game form a microcosm of our global economic reality, where different islands have comparative advantages over each other thanks to the makeup of their local markets. For example, one island may have a comparative advantage over a more highly developed one in the form of cheap labour.

MCRI-2.A.1

Students observe the law of demand as the price adjusts in their markets, seeing demand decrease as prices rise, reflecting the downward-sloping demand curve. An example where this is particularly clear is the worker market.

MCRI-2.B.1

Students experience shifts in the market demand curve in the Demand and Supply graph UI as changes in consumer income or other factors affect demand on their islands, requiring strategic adjustments.



AP TOPIC 1.5

AP TOPIC 1.5 Supply

MCRI-2

Making rational economic decisions involves assessing costs and benefits.

AP LEARNING OBJECTIVE

MCRI-2.C

Define the law of supply, incorporating graphs as necessary.
Describe the relationship between the price of a good or service and the quantity supplied, utilising graphs as needed.

MCRI-2.D

Utilising graphs when possible, explain the determinants of supply.

AP ESSENTIAL KNOWLEDGE

MCRI-2.C.1

Recognise that the law of supply asserts that as the price of a good or service increases, the quantity supplied also increases, resulting in an upward-sloping supply curve.

MCRI-2.D.1

Acknowledge changes in input prices and other factors affecting producer supply can shift the market supply curve.

STEP UP CONTENT (Ch. 1)

Chapter 1

Summary: Chapter 1: Aggregate Production and Prices explores the measurement of key macroeconomic variables like GDP, inflation, and the business cycle. It covers GDP's calculation using production, expenditure, and income approaches, discusses biases in the Consumer Price Index, and examines the relationship between GDP, economic welfare, inflation, and business cycles.

Playconomics Gameplay

Workers, Firms, Retirees

Demand and supply is a cornerstone of the game - it is fundamental to progression and learning. All of the markets in the game are built off demand and supply that players have intentionally added and removed. Very often players will have to react to this changing market, by balancing demand, supply and price.

Additional gameplay

Agent decision-making

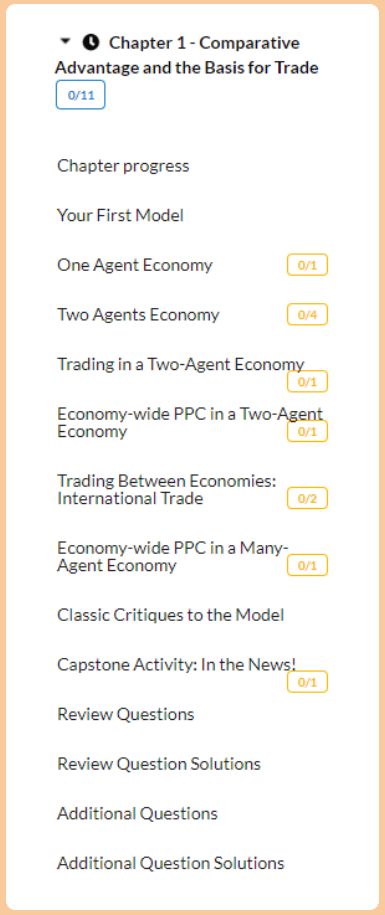
The agents that populate player islands in the game completely rely on cost benefit analysis. Decisions require resources for short and long term payouts and these resources may be better utilised elsewhere. These decisions range from what type of food to eat, whether to work or rest and whether to hire or fire.

MCRI-2.C.1

Students see the law of supply in action as they change their island to increase the supply in their markets, leading to an increase in the quantity supplied, which reflects the upward-sloping supply curve.

MCRI-2.D.1

Students experience shifts in the market supply curve in the Demand and Supply graph UI when changes in input prices or other factors impact the availability of goods. Due to this, they may have to adapt their strategies.



AP TOPIC 1.6

AP TOPIC 1.6 Market Equilibrium, Disequilibrium, and Changes in Equilibrium

MCRI-2

In a competitive market, the equilibrium price is determined by the interaction between demand for and supply of a good or service.

AP LEARNING OBJECTIVE

MCRI-2.E

Using graphs where possible, define and describe market equilibrium.

AP ESSENTIAL KNOWLEDGE

MCRI-2.E.1

Comprehend that equilibrium occurs at the price where quantities demanded and supplied are equal.

MCRI-2.F

A. Define surplus and shortage.
B. Explain how prices adjust to restore equilibrium in markets experiencing imbalances, using graphs as necessary.
C. Calculate the surplus or shortage in the market experiencing an imbalance, using graphs as appropriate.

MCRI-2.F.1

Understand that when markets experience imbalances, resulting in disequilibrium prices, surpluses, and shortages, market forces work to adjust prices towards equilibrium.

MCRI-2.G

Describe (using graphs as needed) how changes in demand and supply impact the equilibrium price and quantity.

MCRI-2.G.1

Know that changes in the factors influencing supply and/or demand lead to a new equilibrium price and quantity.

STEP UP CONTENT (Ch. 1)

Chapter 1

Summary: Chapter 1: Aggregate Production and Prices explores the measurement of key macroeconomic variables like GDP, inflation, and the business cycle. It covers GDP's calculation using production, expenditure, and income approaches, discusses biases in the Consumer Price Index, and examines the relationship between GDP, economic welfare, inflation, and business cycles.

Playconomics Gameplay
Market Equilibrium

All students playing the game have free reign to construct their society how they please, but they are connected to a much larger, macroeconomic ecosystem. As a result, markets often transition between different equilibria as players add and remove consumers and producers.

Additional gameplay
Outbidding and Undercutting

Players have the opportunity to decide their agents will outbid markets to obtain a resource over others, or undercut markets so that they might be hired over other workers. This will have a knock-on effect to influence the global market, and other consumers and producers will have to update their pricing policy to conform or drop out.

MCRI-2.E.1

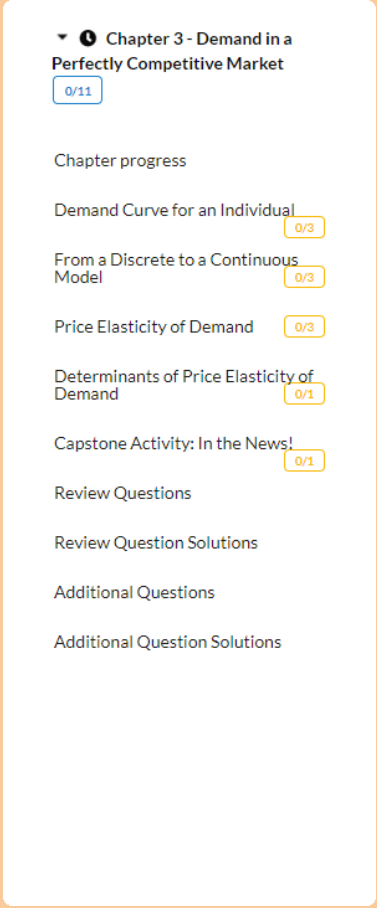
Students observe market equilibrium when the prices set result in equal quantities demanded and supplied, stabilising the market.

MCRI-2.F.1

Students experience disequilibrium through surpluses or shortages, prompting market forces to adjust prices back toward equilibrium.

MCRI-2.G.1

Students see how changes in supply or demand factors (when new agents are added or buildings created on their islands) shift the market, leading to a new equilibrium price and quantity.



OUTREACH MACROECONOMICS

BLOCK 2

Economic Indicators and the Business Cycle

12-17%

ASSESSMENT WEIGHTING

~9-11

CLASS PERIODS

BLOCK 2: Economic Indicators and the Business Cycle

HARMONISED WITH AP "UNITS"

12-17%	~9-11
ASSESSMENT WEIGHTING	CLASS PERIODS

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
MACROECONOMICS INDICATORS MCRI	EXCHANGING GOODS AND SERVICES EGS	MODELS IN MACROECONOMICS MIM	MONETARY AND FISCAL POLICY MFP

BLOCK 2: Economic Indicators and the Business Cycle

HARMONISED WITH AP “UNITS”

Learning Journey	Competencies	Assessments
While the first block introduced students to the fundamentals of economic theory, this block lays the groundwork for analysing broader macroeconomic concepts and issues. Students will examine how the economy functions through a model of the circular flow of resources, goods, and services, as well as the financial exchanges that support them. Additionally, students will gain insight into how economists evaluate the economy's performance, with an introduction to key economic indicators and the business cycle. These ideas will be revisited and expanded upon in different scenarios and models as the course progresses.	In this block, students will deepen their understanding of economic principles by analysing essential measures of economic performance, such as gross domestic product (GDP), unemployment rates, and inflation levels. It's important for students to fully grasp what these indicators represent, how they are calculated, and their limitations. Given that these metrics will be applied in various models and contexts later in the course, students should not merely memorise definitions but should be able to explain and apply these concepts in diverse situations. If students can’t articulate these indicators clearly, they may struggle to use them effectively in other contexts.	The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they’ve been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they’ll face unique restrictions and objectives. Their results will be showcased on Academia’s homepage, with Play Coins earned from their performance being tracked and collected.

Links to AP Units, Competencies and Key Concepts

AP Macroeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
2.1 The Circular Flow and GDP	Chapter 1 - Aggregate Production and Prices	1.A Articulate economic ideas, principles, or theories.	EXCHANGING GOODS AND SERVICES (EGS-1)
2.2 Limitations of GDP	Chapter 1 - Aggregate Production and Prices	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	EXCHANGING GOODS AND SERVICES (EGS-1)
2.3 Unemployment	Chapter 2 - Employment, Unemployment and the Labour Market	1.B Identify an economic idea, principle, or theory through a practical illustration, or using numerical data or computations.	EXCHANGING GOODS AND SERVICES (EGS-1)
2.4 Price Indices and Inflation	Chapter 3 - Interest Rates, Investment and Saving	2.C Use numerical data or statistical analysis to analyse specific economic outcomes.	EXCHANGING GOODS AND SERVICES (EGS-1)
2.5 Costs of Inflation	Chapter 3 - Interest Rates, Investment and Saving	3.A Predict the result of an economic scenario using economic ideas, principles, or theories.	EXCHANGING GOODS AND SERVICES (EGS-1)
2.6 Real v. Nominal GDP	Chapter 1 - Aggregate Production and Prices	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	EXCHANGING GOODS AND SERVICES (EGS-1)
2.7 Business Cycles	Chapter 1 - Aggregate Production and Prices	1.A Articulate economic ideas, principles, or theories.	EXCHANGING GOODS AND SERVICES (EGS-2)

MAIN GAMEPLAY ACTIVITIES

Playconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Macroeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
2.1 The Circular Flow and GDP	Chapter 1 - Aggregate Production and Prices	**Market Transactions** Playconomics captures the circular flow model in its entirety by simulating the interactions between firms, households, government, financial sectors, and overseas sectors within the game world. Every transaction is clearly tracked on screen, making it easy to see how savings and investments, taxation, government expenditures, payments for imports and exports, and income from firms to households occur in the economy.
2.2 Limitations of GDP	Chapter 1 - Aggregate Production and Prices	**Surplus** Playconomics does not only depict market transactions throughout the supply chain but also represents the entire world, including natural resources and various aspects of living in a country. By doing so, Playconomics captures factors such as sustainability and environmental degradation. It shows leisure activities, which are not captured in GDP, and includes black market activities.

Playconomics also displays income distribution, health, education, and leisure time - elements that contribute to wellbeing but don't appear in GDP. Cultural activities and social cohesion resulting from social and cultural factors are shown on the map.

Beyond GDP, it measures societal surplus related to life satisfaction, not just market transactions. This includes people's confidence in the future, mental health, and possible stressors affecting life satisfaction.

Technological advancements are captured, reflecting new products and improvements in quality and efficiency over time. It fully captures consumer surplus, such as the value of paying less for a product than they are willing to pay. Skill and knowledge accumulation, in the form of human capital, are also represented, highlighting aspects of the economy that GDP cannot always capture.

2.3 Unemployment	Chapter 2 - Employment, Unemployment and the Labour Market	**Realistic Labour Market** Playconomics effectively captures the concept of unemployment by visually representing the proportion of your labour force that is unemployed in-world. It goes beyond typical measures, which often understate joblessness, by including discouraged workers who have left the workforce. Playconomics also naturally illustrates cyclical, frictional, and structural unemployment.Cyclical unemployment, which occurs due to fluctuations in the business cycle, is shown during recessions when there is less demand for goods and services, leading to higher unemployment, and during booms when increased demand requires more workers. This dynamic is reflected in Playconomics' international economy, where multiple players' interactions simulate real-world economic conditions. Frictional unemployment is depicted through the temporary unemployment that occurs when individuals transition between jobs to better suit their skills, interests, and preferences. Playconomics visually represents this job searching and matching process on the map, showing new entrants to the labour force, voluntary career changes, and geographic relocations. Structural unemployment is captured by showing mismatches between the skills of the labour force and the needs of employers, which can result from technological advancements, changing consumer preferences, or shifts in the economy such as automation, industry restructuring, globalisation, offshoring, or geographic immobility. By encompassing these different types of unemployment, Playconomics provides a comprehensive and realistic view of the labour market, reflecting the complexities and dynamics of real-world economies.

2.4 Price Indices and Inflation	Chapter 3 - Interest Rates, Investment and Saving	**In-game graphs and game economy** Playconomics, with its dynamic business cycles and fluctuating multiplayer economy, illustrates the importance of price indexes and inflation. As prices frequently change in response to macroeconomic trends, the game shows why the Consumer Price Index (CPI) is crucial for determining the income needed to maintain a standard of living. The game demonstrates how CPI measures, based on fixed baskets of goods and services, track inflation over time and how GDP should be adjusted (deflated) to reflect real economic growth. It highlights the difference between real and nominal wages and can also simulate perfect inflation, allowing players to understand concepts like substitution bias in CPI.	By capturing these economic dynamics, Playconomics serves as an educational tool for understanding the relationship between price indexes, inflation, and economic wellbeing
2.5 Cost of Inflation	Chapter 3 - Interest Rates, Investment and Saving	**Agent income and Firm Profit** Playconomics uses an innovative coin system in its UI to visually represent the movement of money within the economy for each market agent. This allows players to quickly see how earnings, costs, and revenues change during each market cycle by simply looking at and hovering over these in-world coins. Additionally, players can observe how these changes affect the accumulation of wealth for different agents in the economy.	The system also includes financial sectors where borrowers and lenders interact, with interest rates that may be influenced by inflation. This affects the real purchasing power of the money being repaid and lent, providing a comprehensive view of economic dynamics.

2.6 Real v. Nominal GDP	Chapter 1 - Aggregate Production and Prices	**International trading map**	By visually representing all transactions in the simulated world, Playconomics enables players to quickly understand the difference between nominal GDP, which measures total expenditure on output, and real GDP, which measures actual production. The visual representation of each productive agent and transaction, combined with the coin system that tracks money transfers throughout the economy, provides an immediate grasp of the distinction between nominal and real GDP.
			This approach also highlights the importance of avoiding overestimation of real GDP growth when assessing economic performance.
2.7 Business Cycles	Chapter 1 - Aggregate Production and Prices	**Visualising the Simulated Economy**	Playconomics illustrates the multiplayer economy as it expands, with players adding more productive locations and households, which in turn affects aggregate supply and demand. Through in-game graphs, the coin system, and visual representations, the game allows players to quickly understand how changes in aggregate supply and demand create business cycles, characterised by fluctuations in aggregate output and unemployment.
			The game offers an extensive data backend that captures all phases of the business cycle, providing players with the opportunity to analyse how various changes in aggregate supply and demand impact the economy. Additionally, Playconomics demonstrates the difference between actual output and potential output by clearly showing which locations are underutilised and which agents are fully utilised within the game world.

AP TOPIC 2.1

AP TOPIC 2.1 The Circular Flow and GDP

EGS-1

An economy's performance can be measured by various indicators, such as gross domestic product (GDP), the inflation rate, and the unemployment rate.

AP LEARNING OBJECTIVE

EGS-1.A

A. Define how GDP is measured and its components, using the circular flow diagram as appropriate.
B. Calculate nominal GDP.

AP ESSENTIAL KNOWLEDGE

EGS-1.A.1

Acknowledge that GDP measures the final output of an economy.

EGS-1.A.2

Understand that GDP represents the total flow of income and expenditure, and can be illustrated by the circular flow diagram.

EGS-1.A.3

Recognise that GDP can be measured in three ways: the expenditures approach, the income approach, and the value-added approach.

STEP UP CONTENT (Ch. 1)

Chapter 4

Summary: Chapter 4: Income-Expenditure Model of GDP explains the income-expenditure model, showing how planned aggregate expenditure (PAE) determines real GDP. It covers equilibrium, disequilibrium, the multiplier effect, and the paradox of thrift. The model is extended to an open economy, incorporating imports and exports, highlighting the smaller multiplier in open economies.

Playconomics Gameplay

The game captures the circular flow model in its entirety by simulating the interactions between firms, households, government, financial sectors, and overseas sectors within the game world. Every transaction is clearly tracked on screen, making it easy to see how savings and investments, taxation, government expenditures, payments for imports and exports, and income from firms to households occur in the economy.

EGS-1.A.1

Students see GDP as the measure of final output by tracking the total goods and services produced in their island's economy,

EGS-1.A.2

Students intuitively understand that GDP represents the total flow of income and expenditure, through an in-world UI that highlights the interconnectedness of all sectors.

EGS-1.A.3

Students can measure GDP using the expenditures approach, income approach, or value-added approach by deriving data from the agent's deals in-game.

Chapter 1 Aggregate Production and Prices

AP TOPIC 2.2

AP TOPIC 2.2 Limitations of GDP

EGS-1

An economy's performance can be evaluated using various indicators, including gross domestic product (GDP), the inflation rate, and the unemployment rate.

AP LEARNING OBJECTIVE

EGS-1.B

A. Describe the drawbacks of the GDP.

AP ESSENTIAL KNOWLEDGE

EGS-1.B.1

Understand that the GDP is a valuable indicator of a nation's economic performance, yet it has shortcomings, such as its inability to capture non market transactions.

STEP UP CONTENT (Ch. 1)

Chapter 4

Summary: Chapter 4: Income-Expenditure Model of GDP explains the income-expenditure model, showing how planned aggregate expenditure (PAE) determines real GDP. It covers equilibrium, disequilibrium, the multiplier effect, and the paradox of thrift. The model is extended to an open economy, incorporating imports and exports, highlighting the smaller multiplier in open economies.

Playconomics Gameplay

The game offers a comprehensive depiction of the economy that goes beyond traditional market transactions and GDP measurements. It represents the entire world, including natural resources, environmental impacts, and societal elements such as income distribution, health, education, and leisure time, which contribute to overall wellbeing. The game also includes non-market activities like leisure and black market transactions, as well as cultural and social factors that enhance social cohesion. Additionally, it (1) measures societal surplus related to life satisfaction, capturing elements like mental health, future confidence, and stressors, and (2) reflects technological advancements, consumer surplus, and the accumulation of human capital, thereby illustrating aspects of the economy that GDP alone cannot fully represent.

EGS-1.B.1

Students recognize GDP as a valuable indicator by tracking market transactions, while also seeing its shortcomings as the game highlights non-market factors like environmental sustainability, social wellbeing, and black market activities that GDP fails to capture.

AP TOPIC 2.3

AP TOPIC 2.3 Unemployment

EGS-1

An economy's performance can be assessed using various indicators, including gross domestic product (GDP), the inflation rate, and the unemployment rate.

AP LEARNING OBJECTIVE

EGS-1.C

A. Define the labour force, the unemployment rate, and the labour force participation rate.

B. Examine how changes in employment and the labour market impact the unemployment rate and the labour force participation rate.

C. Calculate the unemployment rate and the labour force participation rate.

AP ESSENTIAL KNOWLEDGE

EGS-1.C.1

Acknowledge that the unemployment rate is the proportion of the labour force that is unemployed.

EGS-1.C.2

Understand that the unemployment rate is the percentage of the labour force that is without a job.

EGS-1.D

Describe the constraints of the unemployment rate.

EGS-1.D.1

Comprehend that the measured unemployment rate is frequently criticised for understating the level of joblessness since it excludes groups like discouraged workers and part-time workers.

EGS-1.E

A. Describe the types of unemployment and the natural rate of unemployment.

B. Examine the changes in the types of unemployment.

EGS-1.E.1

Investigate why economists mainly concentrate on three types of unemployment: cyclical, frictional, and structural.

EGS-1.E.2

STEP UP CONTENT (Ch. 2)

Chapter 2

Summary: Chapter 2: Employment, Unemployment and the Labour Market delves into the aggregate labour market, exploring the measurement of labour conditions and the development of a competitive labour market model. It examines labour market definitions, unemployment types, Okun's Law, and equilibrium in labour markets. The chapter also addresses labour market frictions, the impact of minimum wage laws, and the effects of taxes on employment levels.

Playconomics Gameplay

The game provides a comprehensive view of unemployment by visually representing the proportion of the labour force that is unemployed, including those often overlooked, such as discouraged workers who have left the workforce. It effectively illustrates various types of unemployment: cyclical, shown during economic recessions and booms; frictional, depicted through job transitions and the job-matching process; and structural, highlighting mismatches between workers' skills and employer needs due to technological advancements, economic shifts, and globalisation. Through these representations, the game captures the complexities and dynamics of the labour market, offering a realistic portrayal of real-world economic conditions.

EGS-1.C.1

The proportion and percentage of the labour force that is unemployed is visually represented within the game.

EGS-1.E.1

Students explore cyclical, frictional, and structural unemployment through dynamic in-game events, reflecting why economists focus on these types.

EGS-1.E.2

The natural rate of unemployment is illustrated in the game as students balance frictional and structural unemployment with in-game graphs during full-employment scenarios.

EGS-1.E.3

Cyclical unemployment is highlighted by fluctuations in the business cycle, showing students the difference between actual and natural unemployment rates. More granular changes also occur due to businesses gaining and losing natural inputs (resources).

EGS-1.E.4

Students observe how the natural rate of unemployment changes over time with the “tick” system, and correctly attribute it to shifts in labour force characteristics, reflecting real-world economic dynamics.

Chapter 2 - Employment, Unemployment and the Labour Market

Interpret that the natural rate of unemployment is the rate that would prevail when the economy is producing at its full-employment real output. It is the sum of frictional and structural unemployment.

EGS-1.E.3
Understand that cyclical unemployment is the difference between the actual unemployment rate and the natural rate.

EGS-1.E.4
Examine that the natural rate of unemployment can gradually change over time due to factors such as shifts in labour force characteristics.

EGS-1.C.2
In the game, unemployed and without a job are effectively synonymous as they are in reality.

EGS-1.D.1
Students recognize the limitations of the unemployment rate as the game includes discouraged workers and part-time worker agents who are often excluded in traditional measures.

AP TOPIC 2.4

AP TOPIC 2.4 Prices Indices and Inflation

EGS-1

An economy's performance can be assessed through various indicators, including gross domestic product (GDP), the inflation rate, and the unemployment rate.

AP LEARNING OBJECTIVE

EGS-1.F

A. Define the consumer price index (CPI), inflation, deflation, disinflation, the inflation rate, and real variables.
B. Interpret how price indices can be utilised to calculate the inflation rate and compare nominal variables across different time periods.
C. Compute the CPI, the inflation rate, and the changes in real variables.

EGS-1.G

Identify the limitations of the CPI as an accurate measure of inflation.

AP ESSENTIAL KNOWLEDGE

EGS-1.F.1

Acknowledge that the consumer price index (CPI) measures the adjustment in income required for a consumer to maintain the same standard of living over time, given a new set of prices compared to the original prices.

EGS-1.F.2

Recognise that the CPI measures the cost of a fixed basket of goods and services for a specific year in relation to the base year.

EGS-1.F.3

Understand that the inflation rate is calculated by determining the percentage change in a price index, such as the CPI or the GDP deflator.

EGS-1.F.4

Comprehend that the real variables, such as real wages, are nominal variables adjusted for changes in the price level.

EGS-1.G.1

Understand that the CPI has certain shortcomings as an inflation measure, such as substitution bias, which can lead to an overstatement of the actual inflation rate.

STEP UP CONTENT (Ch. 3)

Chapter 3

Summary: Chapter 3: Interest Rates, Investment and Saving covers the role of interest rates, investment, and saving in a closed economy. It explains nominal vs. real interest rates, the Fisher effect, user cost of capital, and national saving. It also explores the impact of government deficits and business confidence on investment and real interest rates.

Playconomics Gameplay

The game effectively demonstrates the significance of price indexes and inflation through its dynamic business cycles and fluctuating multiplayer economy. It highlights the role of the Consumer Price Index (CPI) in tracking inflation and determining the income needed to maintain a standard of living, showing how CPI measures, based on fixed baskets of goods and services, track price changes over time. It also emphasises the importance of adjusting GDP to reflect real economic growth and illustrates the difference between real and nominal wages. By simulating economic concepts like substitution bias in CPI and perfect inflation, the game serves as a valuable educational tool for understanding the relationship between price indexes, inflation, and economic wellbeing.

EGS-1.F.1

Students can derive the CPI for their consumers (for example, retirees, who consume food) according to previous and adjusted prices that change with a market “tick”.

EGS-1.F.2

Students can gather data to derive the cost of a fixed basket of goods and services in a given year relative to the base year.

EGS-1.F.3

Students calculate inflation rates by observing percentage changes in price indexes like the CPI or GDP deflator in response to in-game economic shifts, with the in-world and custom graph UI.

EGS-1.F.4

The game distinguishes between real and nominal wages with the in-world coin system, showing students how real variables are adjusted for price level changes.

EGS-1.G.1

By completing the previous gameplay experiences, a student highlights CPI's shortcomings, such as substitution bias, allowing students to understand how it can overstate inflation.

Chapter 3 - Interest Rates, Investment and Saving

AP TOPIC 2.5

AP TOPIC 2.5 Cost of Inflation

EGS-1

The performance of an economy can be assessed through various indicators, including gross domestic product (GDP), the inflation rate, and the unemployment rate.

AP LEARNING OBJECTIVE

EGS-1.H

Describe the costs that unexpected inflation (or deflation) imposes on individuals and the economy.

AP ESSENTIAL KNOWLEDGE

EGS-1.H.1

Understand that unexpected inflation arbitrarily redistributes wealth from one group of individuals to another group, such as lenders to borrowers

STEP UP CONTENT (Ch. 3)

Chapter 3

Summary: Chapter 3: Interest Rates, Investment and Saving covers the role of interest rates, investment, and saving in a closed economy. It explains nominal vs. real interest rates, the Fisher effect, user cost of capital, and national saving. It also explores the impact of government deficits and business confidence on investment and real interest rates.

Playconomics Gameplay

The game uses an innovative coin system in its UI to visually represent the movement of money within the economy for each market agent. This allows players to quickly see how earnings, costs, and revenues change during each market cycle by simply looking at and hovering over these in-world coins. Additionally, players can observe how these changes affect the accumulation of wealth for different agents in the economy.

The system also includes financial sectors where borrowers and lenders interact, with interest rates that may be influenced by inflation. This affects the real purchasing power of the money being repaid and lent, providing a comprehensive view of economic dynamics.

EGS-1.H.1

Students observe how unexpected inflation (caused from a variety of player-created sources) affects the real purchasing power of money, leading to arbitrary wealth redistribution from lender to borrower agents.

Chapter 3 - Interest Rates, Investment and Saving

AP TOPIC 2.6

AP TOPIC 2.6 Real v. Nominal GDP

EGS-1

An economy's performance can be evaluated through various indicators, such as gross domestic product (GDP), the inflation rate, and the unemployment rate.

AP LEARNING OBJECTIVE	AP ESSENTIAL KNOWLEDGE
EGS-1.I Describe nominal GDP and real GDP.	**EGS-1.I.1** Understand that nominal GDP measures the total expenditure on output, while real GDP measures the total production.
	EGS-1.I.2 Analyse that nominal GDP measures aggregate output using current prices, whereas real GDP measures aggregate output using constant prices, thereby eliminating the effects of changes in the overall price level.
EGS-1.J Compute the real GDP and the GDP deflator.	**EGS-1.J.1** Recognise that one method of measuring real GDP is to value final goods and services using prices from a base year. However, this approach can sometimes lead to an overestimation of real GDP growth, so statistical agencies employ various methods to address this issue.
	EGS-1.J.2 Understand that nominal GDP can be adjusted to real GDP using the GDP deflator.

STEP UP CONTENT (Ch. 1)

Chapter 4

Summary: Chapter 4: Income-Expenditure Model of GDP explains the income-expenditure model, showing how planned aggregate expenditure (PAE) determines real GDP. It covers equilibrium, disequilibrium, the multiplier effect, and the paradox of thrift. The model is extended to an open economy, incorporating imports and exports, highlighting the smaller multiplier in open economies.

Playconomics Gameplay

By visually representing all transactions in the simulated world, the game enables players to quickly understand the difference between nominal GDP, which measures total expenditure on output, and real GDP, which measures actual production. The visual representation of each productive agent and transaction, combined with the coin system that tracks money transfers throughout the economy, provides an immediate grasp of the distinction between nominal and real GDP.

This approach also highlights the importance of avoiding overestimation of real GDP growth when assessing economic performance.

EGS-1.I.1

Students see the difference between nominal GDP, tracking total expenditure, and real GDP through the graph UI system and “tick system”.

EGS-1.I.2

Students analyse how nominal GDP uses current prices while real GDP uses constant prices, with the coin system helping to eliminate the effects of overall price changes.

EGS-1.J.1

Students can intuit through the UI how using base-year prices can overestimate real GDP growth.

EGS-1.J.2

Students adjust nominal GDP to real GDP using the GDP deflator, visually seeing the impact of price level changes on economic measurement.

AP TOPIC 2.7

AP TOPIC 2.7 Business Cycles

EGS-2

In the short-run, the economy experiences fluctuations between periods of expansion and contraction, but long-term economic growth is possible.

AP LEARNING OBJECTIVE

EGS-2.A

A. Define the turning points and phases of the business cycle, using graphs and data as needed.

B. Explain the turning points and phases of the business cycle, using graphs and data as needed.

AP ESSENTIAL KNOWLEDGE

EGS-2.A.1

Acknowledge business cycles refer to fluctuations in aggregate output and employment resulting from changes in aggregate supply and/or aggregate demand.

EGS-2.A.2

Recognise that the phases of a business cycle are recession and expansion.

EGS-2.A.3

Comprehend that the turning points of a business cycle are peak and the trough.

EGS-2.A.4

Examine that the output gap is the difference between actual output and potential output.

EGS-2.A.5

Understand that the potential output, also referred to as full-employment output, is the level of GDP at which unemployment matches the natural rate of unemployment.

STEP UP CONTENT (Ch. 1)

Chapter 4

Summary: Chapter 4: Income-Expenditure Model of GDP explains the income-expenditure model, showing how planned aggregate expenditure (PAE) determines real GDP. It covers equilibrium, disequilibrium, the multiplier effect, and the paradox of thrift. The model is extended to an open economy, incorporating imports and exports, highlighting the smaller multiplier in open economies.

Playconomics Gameplay

The game illustrates the multiplayer economy as it expands, with players adding more productive locations and households, which in turn affects aggregate supply and demand. Through in-game graphs, the coin system, and visual representations, the game allows players to quickly understand how changes in aggregate supply and demand create business cycles, characterised by fluctuations in aggregate output and unemployment.

The game offers an extensive data backend that captures all phases of the business cycle, providing players with the opportunity to analyse how various changes in aggregate supply and demand impact the economy. Additionally, the game demonstrates the difference between actual output and potential output by clearly showing which locations are underutilised and which agents are fully utilised within the game world.

EGS-2.A.1

Students see business cycles in action as aggregate supply and demand changes lead to fluctuations in output and employment, visually represented via in-game graphs and the coin system.

EGS-2.A.2

Playconomics illustrates the phases of the business cycle, showing students periods of recession and expansion as the multiplayer economy evolves.

EGS-2.A.3

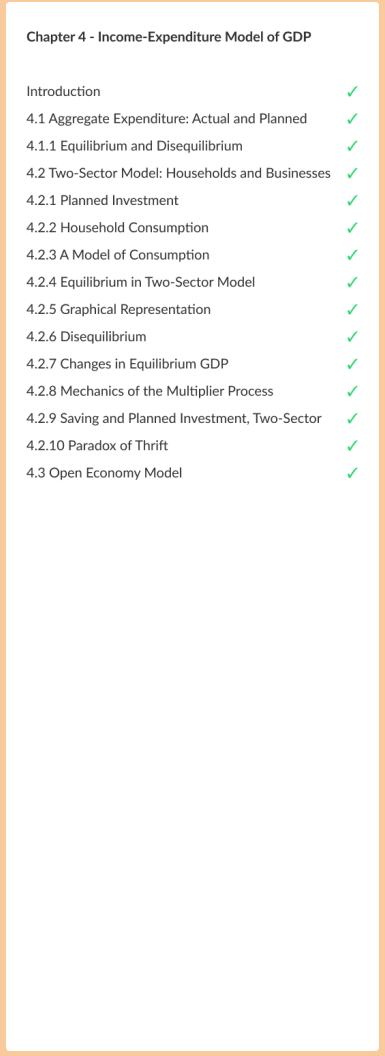
Students identify the turning points of the business cycle - peaks and troughs - as they manage their in-game economies through different economic conditions.

EGS-2.A.4

Playconomics highlights the output gap by showing students the difference between actual and potential output.

EGS-2.A.5

Through a graph UI, students understand potential output as GDP level where unemployment matches the natural rate, observing how their economies perform relative to full-employment output.



OUTREACH MACROECONOMICS

BLOCK 3

National Income and Price Determination

17-27%

ASSESSMENT WEIGHTING

~10-12

CLASS PERIODS

BLOCK 3: National Income and Price Determination

HARMONISED WITH AP "UNITS"

17-27%	~10-12
ASSESSMENT WEIGHTING	CLASS PERIODS

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
MACROECONOMICS INDICATORS MCRI	EXCHANGING GOODS AND SERVICES EGS	MODELS IN MACROECONOMICS MIM	MONETARY AND FISCAL POLICY MFP

BLOCK 3: National Income and Price Determination

HARMONISED WITH AP “UNITS”

Learning Journey	Competencies	Assessments
In the previous block, students explored essential macroeconomic indicators and the business cycle. This block will guide them in understanding how to model and evaluate these concepts within the framework of a specific economic model: the aggregate demand - aggregate supply model. This model is a critical tool for economists, as it helps illustrate the effects of spending, production decisions, and policy actions on macroeconomic outcomes like output, income, unemployment, and inflation.	Economists frequently use models as a means to interpret and predict real-world economic phenomena. In this block, students will engage in repeated practice using the aggregate demand–aggregate supply model to analyse past economic outcomes and anticipate the potential impacts of policy changes and other factors. This approach not only reinforces their ability to interpret and manipulate economic data but also deepens their appreciation for the explanatory power of economic models. Additionally, students will advance their quantitative abilities by focusing on the concept of multipliers. Through guided practice, they will learn to calculate multipliers and explain how changes in spending and taxation can affect real GDP.	The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they’ve been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they’ll face unique restrictions and objectives. Their results will be showcased on Academia’s homepage, with Play Coins earned from their performance being tracked and collected.

Links to AP Units, Competencies and Key Concepts

AP Macroeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
3.1 Aggregate Demand (AD)	Chapter 8 - Aggregate Demand and Aggregate Supply	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	MODELS IN MACROECONOMICS (MIM-2)
3.2 Multipliers	Chapter 4 - Income-Expenditure Model of GDP	3.C Measure the impact of a change in an economic scenario using quantitative methods or calculations.	MODELS IN MACROECONOMICS (MIM-2)
3.3 Short-Run Aggregate Supply (SRAS)	Chapter 8 - Aggregate Demand and Aggregate Supply	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	MODELS IN MACROECONOMICS (MIM-2)
3.4 Long-Run Aggregate Supply (LRAS)	Chapter 8 - Aggregate Demand and Aggregate Supply	1.A Articulate economic ideas, principles, or theories.	MODELS IN MACROECONOMICS (MIM-2)
3.5 Equilibrium in the Aggregate Demand-Aggregate Supply (AD-AS) Model	Chapter 8 - Aggregate Demand and Aggregate Supply	4.B Illustrate your comprehension of a particular economic scenario using a well-labelled diagram or visual.	MODELS IN MACROECONOMICS (MIM-2)
3.6 Changes in the AD-AS Model in the Short-Run	Chapter 8 - Aggregate Demand and Aggregate Supply	4.C Depict the impact of a change in an economic scenario on a labelled diagram or visual.	MODELS IN MACROECONOMICS (MIM-2)

3.7 Long-Run Self-Adjustment	**Chapter 8 - Aggregate Demand and Aggregate Supply**	3.A Predict the result of an economic scenario using economic ideas, principles, or theories.	MODELS IN MACROECONOMICS (MIM-2)
3.8 Fiscal Policy	**Chapter 5 - Government Sector and Fiscal Policy**	2.A Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories.	MONETARY AND FISCAL POLICY (MFP-1)
3.9 Automatic Stabilisers	**Chapter 5 - Government Sector and Fiscal Policy**	1.A Articulate economic ideas, principles, or theories	MONETARY AND FISCAL POLICY (MFP-1)

MAIN GAMEPLAY ACTIVITIES

Playconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Macroeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
3.1 Aggregate Demand (AD)	Chapter 8 - Aggregate Demand and Aggregate Supply	**Reading and understanding the Constellation Graph** The Constellation Graph is an innovative interpretation of the data scraped from Playconomics. Accessible in game at any moment, and updated in real-time, it renders all of the markets in the game and all the deals being made. Through the lens of engaging game variables, players will intuitively understand complex graphing concepts.

3.2 Multipliers	Chapter 4 - Income-Expenditure Model of GDP	**Implementing Tax** By fully visualising the circular flow economy, Playconomics provides a clear insight into the role of the multiplier effect. When there is an increase in expenditure and demand, it leads to an increase in employment, which then results in further increases in expenditure, creating a cyclical effect. Playconomics also incorporates taxes, allowing users to understand the tax multiplier and its impact on the change in aggregate demand resulting from tax adjustments.	Additionally, the game enables analysis of individual agent decisions to comprehend the effects of expenditure and tax multipliers on the marginal propensity to consume, which is the change in consumer spending divided by the change in disposable income.
3.3 Short-Run Aggregate Supply (SRAS)	Chapter 8 - Aggregate Demand and Aggregate Supply	**In-game Graphs** We are currently developing an extension of the constellation graph that captures demand and supply at the individual market level, aggregating this data into the short-run aggregate supply curve. This enhancement will enable a fully micro-founded approach to macroeconomics by integrating the fundamental demand and supply graphs from our microeconomics program into the macroeconomic content.	With these strong micro-foundations, players will clearly see how changes in production costs or shifts in inflationary expectations can cause shifts in the short-run aggregate supply curve. Additionally, because the labour market is fully micro-founded, it will be evident that an increase in output will compel producers to offer higher wages to attract workers with higher reservation prices, as depicted in our microeconomics graphs. This will illustrate the short-run trade-off between inflation and unemployment

3.4 Long-Run Aggregate Supply (LRAS)	Chapter 8 - Aggregate Demand and Aggregate Supply	**Market Cycles**	Playconomics features an innovative tick system that measures the passage of time in the game. Players can press the tick button to advance the simulation, creating market events for specific time periods. This system demonstrates the differences between long-run and short-run economic events, showing how the economy transitions from short-run to long-run outcomes. This approach uniquely illustrates how the long-run aggregate supply differs from the short-run aggregate supply, with prices and wages becoming fully flexible over time.
			Our backend data system rigorously tracks all economic variables, providing players with the infrastructure to fully understand the economy. By actively participating in the economy, players experience a range of unpredictable events resulting from real interactions, adding a behavioural dimension that enriches the variety of outcomes and reinforces traditional economic models.
3.5 Equilibrium in the Aggregate Demand–Aggregate Supply (AD–AS) Model	Chapter 8 - Aggregate Demand and Aggregate Supply	**Reading Constellation Graphs**	Thanks to its detailed micro-foundations, Playconomics tracks supply and demand for each industry based on microeconomic models. We are developing an aggregate demand and supply equilibrium visualisation in the constellation graph, tracing equilibrium from individual markets to the entire economy. This high-level view will show how microeconomic fundamentals connect to macroeconomic outcomes.
			This unique innovation will greatly enhance players' understanding of microeconomics and macroeconomics. Using the tick system, the game will demonstrate the transition from short-run to long-run and its impact on employment, showing how traditional microeconomic models work in a simulated multiplayer environment with real-time decision-making.

3.6 Changes in the AD–AS Model in the Short-Run	**Chapter 8 - Aggregate Demand and Aggregate Supply**	**In-game Scenarios** Given that Playconomics provides a detailed micro-founded view of all markets, it naturally captures all potential shocks and their expected outcomes affecting aggregate demand and supply. These shocks are particularly interesting because they stem not only from abstract educational objectives but also from the actions of other players driven by individual motives within the macro-economy. This creates more realistic and unpredictable scenarios, closely resembling the shocks and outcomes observed in reality. The game offers various configurations where multiple events can occur simultaneously, making the analysis more realistic and complex. Players can experiment in solo planets to individually and carefully examine the effects of positive and negative shocks on aggregate demand and supply without interference from other players. This dual mode - single player and multiplayer - enables a clear understanding of simple models in controlled situations, while also projecting a more complex and unpredictable universe in multiplayer mode.
3.7 Long-Run Self-Adjustment	**Chapter 8 - Aggregate Demand and Aggregate Supply**	**Single Player Gameplay** In Playconomics, players can experiment with their simulated economy without using policies or government actions. By focusing on the single-player component in a solo planet, they can understand long-run adjustments without interference from government policies or other players. This allows them to see how their economy reaches long-run aggregate supply equilibrium and identify factors that can shift the long-run aggregate supply and demand curves, affecting economic growth. Additionally, players can use an immigration system to selectively invite new agents into their economy, helping them understand how economic growth can be driven by increasing population and its effect on economic equilibrium.

3.8 Fiscal Policy	Chapter 5 - Government Sector and Fiscal Policy	**Implementing Government Policies** In Playconomics, players can implement a range of fiscal policies to improve their economies and achieve macroeconomic goals, such as full employment. The game allows the government to engage in activities like government spending, providing stimuli to firms for innovation, imposing taxes and subsidies, and transferring government revenue throughout the economy. This enables players to directly see how these actions affect individual markets, as well as aggregate demand and supply, both in the short-run and long-run, particularly in response to negative shocks countered by expansionary or contractionary fiscal policies.	The game offers two modes to explore these dynamics. In single-player mode, players can select a planet where they are the sole decision-maker, allowing for detailed comparative statics analysis to observe the impact of each decision. In multiplayer mode, the environment is more complex and unpredictable, making business cycles harder to predict and requiring more sophisticated government policies to respond effectively to economic changes.
3.9 Automatic Stabilisers	Chapter 5 - Government Sector and Fiscal Policy	**Implementing Tax and Government Policies** Playconomics adopts a fully systemic approach to simulation, where everything except consumer preferences and firm technology is endogenous. This means all aspects are emergent, allowing for a seamless integration of microeconomics and macroeconomics within the same game without imposing additional restrictions on either domain.	Consequently, the game naturally captures the concept of automatic stabilisers. For instance, a fall in GDP reduces tax revenues, preventing further economic decline, while an increase in GDP boosts tax revenues, slowing consumption. Additionally, players can implement government policies to study their role as automatic stabilisers.

AP TOPIC 3.1

AP TOPIC 3.1 Aggregate Demand (AD)

MIM-2

Economists utilise the aggregate demand–aggregate supply model to depict the relationship between the price level and total output in an economy. This model demonstrates how output, employment, and the price level react to macroeconomic shocks.

AP LEARNING OBJECTIVE

MIM-2.A

A. Define the aggregate demand (AD) curve, using graphs where applicable.
B. Explain the slope of the AD curve and its determinants, incorporating graphs as needed.

AP ESSENTIAL KNOWLEDGE

MIM-2.A.1

Understand that the aggregate demand (AD) curve illustrates the relationship between the price level and the quantity of goods and services demanded by households (consumption), firms (investment), the government (government spending), and the rest of the world (net exports).

MIM-2.A.2

Acknowledge that the negative slope of the AD curve is explained by the real wealth effect, the interest rate effect, and the exchange rate effect.

MIM-2.A.3

Comprehend that any change in the components of aggregate demand (consumption, investment, government spending, or net exports) that is not caused by changes in the price level results in a shift of the AD curve.

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Chapter 8: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

Reading and understanding the Constellation Graph

The Constellation Graph is an innovative interpretation of the data scraped from the game. Accessible in game at any moment, and updated in real-time, it renders all of the markets in the game and all the deals being made. Through the lens of engaging game variables, players will intuitively understand complex graphing concepts.

MIM-2.A.1

Students use the Constellation Graph to see how the aggregate demand (AD) curve shows the relationship between price levels and the quantity of goods and services demanded by different sectors.

MIM-2.A.2

The negative slope of the AD curve will be understood by players through real-time data (updated with the “tick system”), showing the effects of real wealth, interest rates, and exchange rates on

MIM-2.A.3

Students observe shifts in the AD curve as changes in consumption, investment, government spending, or net exports occur independently of price level changes, visualised through the Constellation Graph.

Chapter 8 - Aggregate Demand and Aggregate Supply

AP TOPIC 3.2

AP TOPIC 3.2 Multipliers

MIM-2

Economists use the aggregate demand–aggregate supply model to depict the relationship between the price level and aggregate output in an economy. This model also illustrates how output, employment, and the price level respond to macroeconomic shocks.

AP LEARNING OBJECTIVE

MIM-2.B

A. Describe the expenditure multiplier, the tax multiplier, the marginal propensity to consume, and the marginal propensity to save.
B. Explain how changes in spending and taxes result in changes in real GDP.
C. Calculate how changes in spending and taxes result in changes in real GDP.

AP ESSENTIAL KNOWLEDGE

MIM-2.B.1

Recognise that a $1 change in autonomous expenditures results in subsequent changes in total expenditures and total output.

MIM-2.B.2

Understand that the expenditure multiplier measures the size of the change in aggregate demand due to a change in any component of aggregate demand.

MIM-2.B.3

Acknowledge that the tax multiplier measures the magnitude of the change in aggregate demand resulting from a change in taxes.

MIM-2.B.4

Identify that the expenditure multiplier and tax multiplier depend on the marginal propensity to consume.

MIM-2.B.5

Understand that the marginal propensity to consume is the change in consumer spending divided by the change in disposable income. The sum of the marginal propensity to consume and the marginal propensity to save equals one.

STEP UP CONTENT (Ch. 4)

Chapter 4

Summary: Chapter 4: Income-Expenditure Model of GDP explains the income-expenditure model, showing how planned aggregate expenditure (PAE) determines real GDP. It covers equilibrium, disequilibrium, the multiplier effect, and the paradox of thrift. The model is extended to an open economy, incorporating imports and exports, highlighting the smaller multiplier in open economies.

Playconomics Gameplay

By fully visualising the circular flow economy, the game provides a clear insight into the role of the multiplier effect. When there is an increase in expenditure and demand, it leads to an increase in employment, which then results in further increases in expenditure, creating a cyclical effect. Playconomics also incorporates taxes, allowing users to understand the tax multiplier and its impact on the change in aggregate demand resulting from tax adjustments. Additionally, the game enables analysis of individual agent decisions to comprehend the effects of expenditure and tax multipliers on the marginal propensity to consume, which is the change in consumer spending divided by the change in disposable income.

MIM-2.B.1

Students observe how a $1 change in autonomous expenditures leads to subsequent changes in total expenditures and output, visualised through the circular flow in the game's graph and coin UI.

MIM-2.B.2

The expenditure multiplier is demonstrated as students see how changes in any component of aggregate demand result in magnified shifts in the overall demand within the game.

MIM-2.B.3

Students understand the tax multiplier by observing that when they use their government building to adjust tax, it leads to proportional changes in aggregate demand, with the impact visualised in the game's economy.

MIM-2.B.4

The game illustrates how expenditure and tax multipliers are influenced by the marginal propensity to consume, shown through individual agent decisions and their effects on the economy.

MIM-2.B.5

The game allows students to grasp the concept of the marginal propensity to consume, by showing the relationship between changes in consumer spending and disposable income.

Chapter 4 - Income-Expenditure Model of GDP

AP TOPIC 3.3

AP TOPIC 3.3 Short-Run Aggregate Supply (SRAS)

MIM-2

Economists use the aggregate demand–aggregate supply model to depict the relationship between the price level and aggregate output in an economy. This model also illustrates how output, employment, and the price level respond to macroeconomic shocks.

AP LEARNING OBJECTIVE

MIM-2.C

A. Define the short-run aggregate supply (SRAS) curve, using graphs as appropriate.
B. Explain the slope of the SRAS curve and its determinants, incorporating graphs where appropriate.

MIM-2.D

Explain how movement along the SRAS curve implies a relationship between the price level (and inflation) and unemployment, using graphs where appropriate.

AP ESSENTIAL KNOWLEDGE

MIM-2.C.1

Understand that the short-run aggregate supply (SRAS) curve describes the relationship between the price level and the quantity of goods and services that firms are willing to produce in the short-run.

MIM-2.C.2

Acknowledge that the SRAS curve is upward-sloping due to sticky wages and prices.

MIM-2.C.3

Recognise that any factor that changes production costs, such as a shift in inflationary expectations, will cause the SRAS curve to shift.

MIM-2.D.1

Comprehend that moving along the SRAS curve, an increase in the price level is associated with an increase in output, leading to a corresponding rise in employment. With the labour force remaining constant, unemployment will decrease. Therefore, there is a short-run trade-off between inflation and unemployment.

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Chapter 8: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

We are enhancing our constellation graph to integrate microeconomic demand and supply data into the short-run aggregate supply curve, creating a micro-founded macroeconomic model. This will clarify how production costs and inflation expectations impact supply, highlighting the short-run trade-off between inflation and unemployment through labour market dynamics.

MIM-2.C.1

Students understand the relationship between price levels and the quantity of goods and services firms are willing to produce in the short-run by using the Constellation Graph.

MIM-2.C.2

The upward slope of the SRAS curve is illustrated as students observe sticky wages and prices affecting production decisions in the game's micro-founded economy.

MIM-2.C.3

Students recognize how factors like changes in production costs or shifts in inflationary expectations cause the SRAS curve to shift, with these dynamics clearly depicted in the enhanced Constellation Graph.

MIM-2.D.1

The game's graph UI and dynamic world demonstrates to students the short-run trade-off between inflation and unemployment.

Chapter 8 - Aggregate Demand and Aggregate Supply

AP TOPIC 3.4

AP TOPIC 3.4 Long-Run Aggregate Supply (LRAS)

MIM-2

Economists use the aggregate demand–aggregate supply model to represent the relationship between the price level and aggregate output in an economy. This model illustrates how output, employment, and the price level respond to macroeconomic shocks.

AP LEARNING OBJECTIVE

MIM-2.E

Define the short-run and the long-run, using graphs as appropriate.

MIM-2.F

Define the long-run aggregate supply (LRAS) curve, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MIM-2.E.1

Understand that in the long-run, all prices and wages are fully flexible, while in the short-run, some input prices are fixed. As a result of flexible long-run prices and wages, there is no long-run trade-off between inflation and unemployment.

MIM-2.F.1

Explain that the LRAS curve corresponds to the production possibilities curve (PPC) as both represent maximum sustainable capacity. Maximum sustainable capacity is the total output an economic system can produce over a set period if all resources are fully employed.

MIM-2.F.2

Understand that the LRAS curve is vertical at the full-employment level of output because, in the long-run, wages and prices fully adjust.

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Chapter 8: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

The game's tick system advances the simulation, showing the transition from short-run to long-run economic outcomes. It highlights differences between long-run and short-run aggregate supply as prices and wages become flexible. Players experience unpredictable events, adding a behavioural dimension that enriches economic models and outcomes.

MIM-2.E.1

Students experience the transition from short-run to long-run economic events using the tick system, observing how prices and wages become fully flexible over time, eliminating the trade-off between inflation and unemployment in the long-run.

MIM-2.F.1

The LRAS curve is illustrated in the game, showing students how it corresponds to the production possibilities curve (PPC), both representing the economy's maximum sustainable capacity when all resources are fully employed.

MIM-2.F.2

Students understand that the LRAS curve is vertical at the full-employment level of output, as the game demonstrates how wages and prices fully adjust in the long-run, with these dynamics clearly depicted over time through the simulation.

Chapter 8 - Aggregate Demand and Aggregate Supply

AP TOPIC 3.5

AP TOPIC 3.5 Equilibrium in the Aggregate Demand–Aggregate Supply (AD–AS) Model

MIM-2

Economists use the aggregate demand–aggregate supply model to depict the relationship between the price level and aggregate output in an economy. This model also illustrates how output, employment, and the price level respond to macroeconomic shocks.

AP LEARNING OBJECTIVE

MIM-2.G

Explain the short-run and long-run equilibrium price levels and output levels, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MIM-2.G.1

Examine that the short-run equilibrium occurs when the aggregate quantity of output demanded equals the aggregate quantity of output supplied, which is at the intersection of the AD and SRAS curves.

MIM-2.G.2

Understand that the long-run equilibrium occurs when the AD and SRAS curves intersect at the LRAS curve, representing the full-employment level of real output.

MIM-2.G.3

Recognise that the short-run equilibrium output can be at, above, or below the full-employment level of output, resulting in positive (inflationary) or negative (recessionary) output gaps.

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Chapter 8: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

The game uses microeconomic models to track supply and demand across industries, developing an aggregate demand and supply visualisation that links individual markets to the entire economy. This innovation enhances understanding of micro and macroeconomics, demonstrating short-run to long-run transitions and employment impacts in a simulated, multiplayer environment with real-time decision-making.

MIM-2.G.1

Students observe the short-run equilibrium in the Constellation Graph as the aggregate quantity of output demanded equals the aggregate quantity supplied, where the AD and SRAS curves intersect.

MIM-2.G.2

The game demonstrates the long-run equilibrium when the AD and SRAS curves intersect at the LRAS curve, which is represented through the actions of the in-world agents.

MIM-2.G.3

Students recognize how short-run equilibrium output can deviate from the full-employment level, shown through the aggregate demand and supply equilibrium visualisation of their society's agents.

Chapter 8 - Aggregate Demand and Aggregate Supply

AP TOPIC 3.6

AP TOPIC 3.6 Changes in the AD–AS Model in the Short-Run

MIM-2

Economists use the aggregate demand–aggregate supply model to represent the relationship between the price level and aggregate output in an economy. This model also illustrates how output, employment, and the price level respond to macroeconomic shocks.

AP LEARNING OBJECTIVE

MIM-2.H

Explain the response of output, employment, and the price level to an aggregate demand or aggregate supply shock in the short-run, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MIM-2.H.1

Acknowledge that the positive shock in AD causes output, employment, and the price level to rise in the short-run, while a negative shock causes them to fall.

MIM-2.H.2

Understand that positive shock in SRAS causes output and employment to rise and the price level to fall in the short-run, while a negative shock causes output and employment to fall and the price level to rise.

MIM-2.H.3

Interpret that inflation can be caused by changes in aggregate demand (demand-pull) or changes in aggregate supply (cost-push).

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Chapter 8: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

The game captures shocks to aggregate demand and supply based on player actions, creating realistic and unpredictable scenarios. The game allows for solo and multiplayer modes, enabling players to analyse shocks in controlled or complex environments. This dual mode enhances understanding of simple models and simulates real-world economic unpredictability.

MIM-2.H.1

Students see how a positive shock in aggregate demand causes output, employment, and prices to rise, while a negative shock leads to declines, both in solo and multiplayer modes.

MIM-2.H.2

The game demonstrates how positive shocks in SRAS increase output and employment while lowering prices, and negative shocks decrease output and employment while raising prices, allowing players to explore these dynamics in various scenarios.

MIM-2.H.3

Students interpret inflation by experimenting with demand-pull (changes in aggregate demand) and cost-push (changes in aggregate supply) scenarios, observing through the agents on their island how these forces drive price changes within the game's economy.

Chapter 8 - Aggregate Demand and Aggregate Supply

AP TOPIC 3.7

AP TOPIC 3.7 Long-Run Self-Adjustment

MIM-2

Economists use the aggregate demand–aggregate supply model to represent the relationship between the price level and aggregate output in an economy. This model illustrates how output, employment, and the price level respond to macroeconomic shocks.

AP LEARNING OBJECTIVE

MIM-2.I

Explain the response of output, employment, and the price level to an aggregate demand or aggregate supply shock in the long-run, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MIM-2.I.1

Understand that in the long-run, without government policy actions, flexible wages and prices will adjust to restore full employment, and unemployment will return to its natural rate after a shock to aggregate demand or short-run aggregate supply.

MIM-2.I.2

Understand the shifts in the long-run aggregate supply curve indicate changes in the full-employment level of output and signify economic growth.

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Chapter 8: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

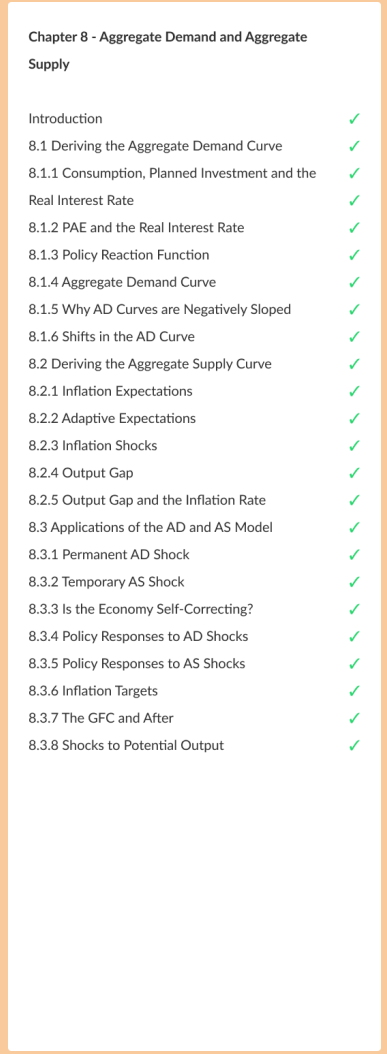
In the game, players experiment with a simulated economy in solo mode, focusing on long-run adjustments without government interference. This helps them understand how economies reach long-run equilibrium and factors that shift aggregate supply and demand curves. Additionally, players use an immigration system to explore how population growth impacts economic equilibrium.

MIM-2.I.1

Students observe how, in the long-run (by accelerating time with the “tick system”), without government intervention, flexible wages and prices naturally adjust to restore full employment and bring unemployment back to its natural rate after a shock to aggregate demand or short-run aggregate supply.

MIM-2.I.2

Through the immigration system and other factors, students see how shifts in the long-run aggregate supply curve reflect changes in the full-employment level of output, signalling economic growth and its impact on the economy's equilibrium.



Chapter 8 - Aggregate Demand and Aggregate Supply

AP TOPIC 3.8

AP TOPIC 3.8 Fiscal Policy

MFP-1

Fiscal and monetary policies have short-run effects on macroeconomic outcomes.

AP LEARNING OBJECTIVE

MFP-1.A

A. Define fiscal policy and related terms.
B. Explain the short-run effects of a fiscal policy action, using graphs as appropriate.
C. Calculate the short-run effects of a fiscal policy action.

AP ESSENTIAL KNOWLEDGE

MFP-1.A.1

Recognise governments implement fiscal policies to achieve macroeconomic goals, such as full employment.

MFP-1.A.2

Understand that the tools of fiscal policy are government spending and taxes/transfers.

MFP-1.A.3

Acknowledge that changes in government spending directly affect aggregate demand, while changes in taxes and transfers indirectly affect aggregate demand.

MFP-1.A.4

Evaluate that the government spending multiplier is larger than the tax multiplier.

MFP-1.A.5

Identify that expansionary or contractionary fiscal policies are used to restore full employment when the economy is experiencing a negative (recessionary) or positive (inflationary) output gap.

MFP-1.A.6

Understand that fiscal policy can influence aggregate demand, real output, and the price level.

STEP UP CONTENT (Ch. 5)

Chapter 5

Summary: Chapter 5: Government Sector and Fiscal Policy explores fiscal policy's impact on GDP, emphasising government spending, taxes, and public debt. It introduces fiscal multipliers, the balanced budget multiplier, and automatic stabilisers. The chapter also examines budget deficits, public debt sustainability, and the four-sector income-expenditure model, incorporating international trade to determine equilibrium GDP.

Playconomics Gameplay

In the game, players implement fiscal policies to achieve macroeconomic goals like full employment. They can explore government spending, taxes, and subsidies, observing their impact on markets and aggregate demand and supply. Single-player mode allows for detailed analysis, while multiplayer mode introduces complexity, requiring sophisticated policy responses to unpredictable economic changes.

MFP-1.A.1

Students can implement fiscal policies, like spending and taxation, to achieve macroeconomic goals such as full employment, directly affecting their simulated economies.

MFP-1.A.2

The game allows students to use tools of fiscal policy, including government spending, taxes, and transfers, to influence their economy's performance in real time.

MFP-1.A.5

Students use expansionary or contractionary fiscal policies by interacting with their government building to close output gaps, restoring full employment by responding to recessionary or inflationary pressures in the economy.

MFP-1.A.6

Through manipulating policy with their government building, students can derive how fiscal policy influences aggregate demand, real output, and the price level, helping them see the broader economic impact of their decisions.

MFP-1.A.7

The AD–AS model in the game visually demonstrates the short-run effects of fiscal policy, allowing students to interpret the immediate impacts of their policy choices by "ticking" the market.

MFP-1.B.1

Students experience the lags in discretionary fiscal policy, understanding the delays in decision-making and implementation, which adds a layer of realism to the challenges of managing an economy.

	MFP-1.A.7 Interpret and recognise that the AD–AS model is used to demonstrate the short-run effects of fiscal policy.	**MFP-1.A.3** Students see how changes in government spending directly boost aggregate demand, while adjustments in taxes and transfers have indirect effects, shifting aggregate demand based on policy decisions.	
MFP-1.B Describe why there are lags to discretionary fiscal policy.	**MFP-1.B.1** Understand that in reality, there are lags to discretionary fiscal policy due to factors such as the time it takes to decide on and implement a policy action.	**MFP-1.A.4** The game demonstrates that the government spending multiplier has a larger impact on aggregate demand compared to the tax multiplier, offering a clear visual representation of these effects.	

AP TOPIC 3.9

AP TOPIC 3.9 Automatic Stabilisers

MFP-1

Fiscal and monetary policies have short-run effects on macroeconomic outcomes.

AP LEARNING OBJECTIVE

MFP-1.C

A. Describe automatic stabilisers
B. Explain how automatic stabilisers help to moderate business cycles.

AP ESSENTIAL KNOWLEDGE

MFP-1.C.1

Recognise that automatic stabilisers support the economy during recessions and help prevent it from overheating during periods of expansion.

MFP-1.C.2

Understand that as GDP falls, tax revenues automatically decrease, preventing consumption and the economy from declining further.

MFP-1.C.3

Comprehend that as GDP rises, tax revenues automatically increase, slowing consumption and preventing the economy from overheating.

MFP-1.C.4

Acknowledge that government policies, institutions, or agencies may also implement social service programs with transfer payments that act as automatic stabilisers.

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Chapter 8: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

The game's systemic approach makes all aspects except consumer preferences and firm technology endogenous, seamlessly integrating micro and macroeconomics. The game naturally captures automatic stabilisers, like how changes in GDP impact tax revenues and economic stability. Players can also implement government policies to explore their role as automatic stabilisers.

MFP-1.C.1

Students observe how automatic stabilisers naturally function in the game, supporting the economy during recessions and preventing overheating during expansions without direct intervention.

MFP-1.C.2

The in-game graph UI demonstrates how a fall in GDP leads to a decrease in tax revenues, which helps to prevent further economic decline by maintaining consumption levels.

MFP-1.C.3

Students see how rising GDP increases tax revenues, which automatically slows consumption and helps to prevent the economy from overheating.

MFP-1.C.4

Through gameplay, students can implement government policies that act as automatic stabilisers, providing a hands-on understanding of their role in maintaining economic stability.

Chapter 8 - Aggregate Demand and Aggregate Supply

OUTREACH MACROECONOMICS

BLOCK 4

Financial Sector

18-23%

ASSESSMENT WEIGHTING

~11-13

CLASS PERIODS

BLOCK 4: Financial Sector

HARMONISED WITH AP "UNITS"

18-23%	~11-13
ASSESSMENT WEIGHTING	CLASS PERIODS

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
MACROECONOMICS INDICATORS MCRI	EXCHANGING GOODS AND SERVICES EGS	MODELS IN MACROECONOMICS MIM	MONETARY AND FISCAL POLICY MFP

BLOCK 4: Financial Sector

HARMONISED WITH AP “UNITS”

Learning Journey	Competencies	Assessments
In the preceding block, students examined the impacts of fiscal policy. This block shifts the focus to evaluating the macroeconomic effects of monetary policy. Before diving into this, students need to first grasp how the financial sector operates and be able to explain the mechanisms through which monetary policy is implemented and its effects transmitted via the banking system. This journey begins with an introduction to financial assets, including the nature of money, and an exploration of how fractional reserve banking facilitates the expansion of the money supply. From there, students will deepen their understanding by learning to model the money market, the reserve market, and the loanable funds market.	In this block, students will delve into the workings of the financial sector, applying this knowledge within various contexts. It's important to introduce new concepts and terminology effectively, avoiding rote memorization and instead focusing on meaningful understanding. Students will also be expected to depict various markets graphically in this block. This involves explaining the foundational assumptions of each market and practising these models to ensure students can create accurate, well-labelled graphs to represent and analyse economic scenarios. Additionally, students will continue to refine their quantitative skills by interpreting bank balance sheets and calculating changes in demand deposits, loans, and reserves within the banking system in response to activities like deposits, withdrawals, and monetary policy adjustments. As with earlier topics, it is critical to anchor these skills in a thorough understanding of underlying concepts - in this case, fractional reserve banking - while also providing ample time for practice through numerical examples.	The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they’ve been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they’ll face unique restrictions and objectives. Their results will be showcased on Academia’s homepage, with Play Coins earned from their performance being tracked and collected.

Links to AP Units, Competencies and Key Concepts

AP Macroeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
4.1 Financial Assets	**Chapter 6 - Financial Assets, Money and Private Banks**	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	EXCHANGING GOODS AND SERVICES (EGS-3)
4.2 Nominal v. Real Interest Rates	**Chapter 3 - Interest Rates, Investment and Saving**	1.A Articulate economic ideas, principles, or theories.	EXCHANGING GOODS AND SERVICES (EGS-3)
4.3 Definition, Measurement, and Functions of Money	**Chapter 6 - Financial Assets, Money and Private Banks**	1.B Identify an economic idea, principle, or theory through a practical illustration, or using numerical data or computations.	EXCHANGING GOODS AND SERVICES (EGS-3)
4.4 Banking and the Expansion Of the Money Supply	**Chapter 6 - Financial Assets, Money and Private Banks**	3.C Measure the impact of a change in an economic scenario using quantitative methods or calculations.	MONETARY AND FISCAL POLICY (MFP-2)
4.5 The Money Market	**Chapter 7 - Central Banks and Monetary Policy**	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	MACROECONOMIC INDICATORS (MCRI-3)
4.6 Monetary Policy	**Chapter 7 - Central Banks and Monetary Policy**	2.A Explain why a specific economic result occurs or determine actions needed to	MONETARY AND FISCAL POLICY (MFP-1)

		achieve a desired outcome, utilising economic ideas, principles, or theories.	
4.7 The Loanable Funds Market	**Chapter 3 - Interest Rates, Investment and Saving**	4.C Depict the impact of a change in an economic scenario on a labelled diagram or visual.	MACROECONOMIC INDICATORS (MCRI-4)

MAIN GAMEPLAY ACTIVITIES

Playconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Macroeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities	
4.1 Financial Assets	Chapter 6 - Financial Assets, Money and Private Banks	**Balances** In Playconomics, money is traded just as in real life. You'll be able to find stores of money at every level of society, from retirees, to businesses, to governments.	With a wide variety of "levers" to pull, transferring this money between hands (and seeing the results in a society that updates in real-time) is an engaging, educational experience.
4.2 Nominal v. Real Interest Rates	Chapter 3 - Interest Rates, Investment and Saving	**Loans** Playconomics allows players to take loans on behalf of various agents in their economies, including governments, households, and firms.	The game incorporates a central banking system where individuals with wealth automatically deposit money into the bank, creating a money supply. This system also enables players to finance expenditures or government spending through borrowing.

		The financial market is regulated by a nominal interest rate, which players can analyse through the lens of the real interest rate by considering the effects of price levels and inflation on the nominal rate.	This setup provides a comprehensive understanding of the interactions between borrowing, lending, and economic activity.
4.3 Definition, Measurement, and Functions of Money	**Chapter 6 - Financial Assets, Money and Private Banks**	**Simulated Economy** Playconomics, through its accurate simulation, clearly demonstrates the importance of money as a means of payment, a medium of exchange, a unit of account, and a store of value. We are currently working on extending Playconomics to include bank reserves, which are not yet simulated in the game.	Currently, we assume that bank reserves fully cover the monetary base. However, the game already provides an intuitive understanding of different monetary aggregates, specifically M1 and M2.
4.4 Banking and the Expansion of the Money Supply	**Chapter 6 - Financial Assets, Money and Private Banks**	**Banks** In the current version, the game does not specifically model the role of commercial banks, how these banks organise their assets and liabilities on balance sheets, or the concept of a fractional reserve banking system. This is an interesting topic that we plan to add to the game in future updates.	We aim to allow players to create and manage individual banks, enabling players to directly experiment with the concepts of banking and understand its key features. Stay tuned for updates on this exciting development!
4.5 The Money Market	**Chapter 7 - Central Banks and Monetary Policy**	**Affecting the Movement of Money** In Playconomics, firms, households, governments, and international entities can both borrow and lend money in a unified money market, where the interest rate is set to equalise the demand for and supply of money.	As a fully micro-founded model integrated with the broader economy, Playconomics clearly demonstrates the inverse relationship between the nominal interest rate and the quantity of money people wish to hold.

		The game also illustrates the concept of a monetary base determined by a country's central bank. In single-player mode, it highlights the necessity of an interest rate to balance the quantity of money demanded with the supply, and shows the consequences of interest rate disequilibrium, such as surpluses or shortages in the money market.	Additionally, Playconomics captures the direct effects of factors that shift the demand for money, such as changing price levels, and factors that shift the supply of money, such as monetary policies.
4.6 The Money Market	Chapter 7 - Central Banks and Monetary Policy	**Monetary Policies** Currently, Playconomics does not include or give players control over central banks in a strict sense. While players can inject money into their economy in single-player mode on solo planets, simulating some effects of monetary policies, the model does not yet accurately track how a central bank conducts monetary policies through open market operations and other tools.	We plan to add this feature in future development. However, the game does offer a simplified version of expansionary and contractionary monetary policies, providing an understanding of how these policies impact aggregate demand and supply and capturing the short-run effects of monetary policy.
4.7 The Money Market	Chapter 3 - Interest Rates, Investment and Saving	**Taking Loans and Lending Money** Under player control, all actors in the simulated world - including individuals, governments, firms, and international entities - can take out loans or lend money via the banking system. The loanable funds market is fully fleshed out, reflecting the behaviours of savers, who deposit money in bank accounts, and borrowers, such as governments, firms, and households, who seek loans for consumption or investment.	Playconomics also offers an understanding of the money market within an open economy framework, where investment equals national savings plus net capital inflow. Through the constellation and demand and supply graphs, the game visually explains how the interest rate is set to balance the quantity of loanable funds demanded and supplied, and illustrates the effects of this equilibrium.

The game illustrates that the demand for funds is inversely related to the real interest rates and the quantity of loanable funds demanded. Similarly, the supply is positively related to the real interest rate and the quantity of loanable funds supplied. In single-player, solo planet mode, players can see that national savings without international borrowing must equal the sum of public and private savings.

By being fully emergent and micro-founded, Playconomics connects the effects of government spending, taxes, and borrowing on interest rates. Future iterations of the game will include a system that encourages firms to automatically start investments if interest rates are favourable or if there are investment tax credits, providing even more insights into market equilibrium.

AP TOPIC 4.1

AP TOPIC 4.1 Financial Assets

EGS-3

Money allows for the comparison of the value of goods and services, while interest rates provide a measure of the cost of borrowing or the return on saving money.

AP LEARNING OBJECTIVE

EGS-3.A

A. Define the principal attributes - liquidity, rate of return, and risk - associated with various classes of financial assets, including money.

B. Explain the relationship between the price of previously issued bonds and interest rates.

AP ESSENTIAL KNOWLEDGE

EGS-3.A.1

Acknowledge that the most liquid forms of money are cash and demand deposits.

EGS-3.A.2

Recognise that other financial assets that people can hold instead of the most liquid forms of money include bonds (interest-bearing assets) and stocks (equity).

EGS-3.A.3

Examine that the price of previously issued bonds and interest rates on bonds are inversely related.

EGS-3.A.4

Understand that the opportunity cost of holding money is the interest that could have been earned from holding other financial assets, such as bonds.

STEP UP CONTENT (Ch. 6)

Chapter 6

Summary: Chapter 6: Financial Assets, Money and Private Banks explores financial assets, focusing on bonds, money, and banking. It examines asset returns, bond pricing, and the definition and functions of money. The chapter also covers the demand and supply of money, bank operations, regulation, and the quantity theory of money linking money supply to inflation.

Playconomics Gameplay

Balances

In the game, money is traded just as in real life. Players will be able to find stores of money at every level of society, from retirees, to businesses, to governments. With a wide variety of “levers” to pull, transferring this money between hands (and seeing the results in a society that updates in real-time) is an engaging, educational experience.

EGS-3.A.1

Students see the most liquid forms of money, such as cash and demand deposits, being traded and stored at various societal levels, from individuals to governments.

EGS-3.A.2

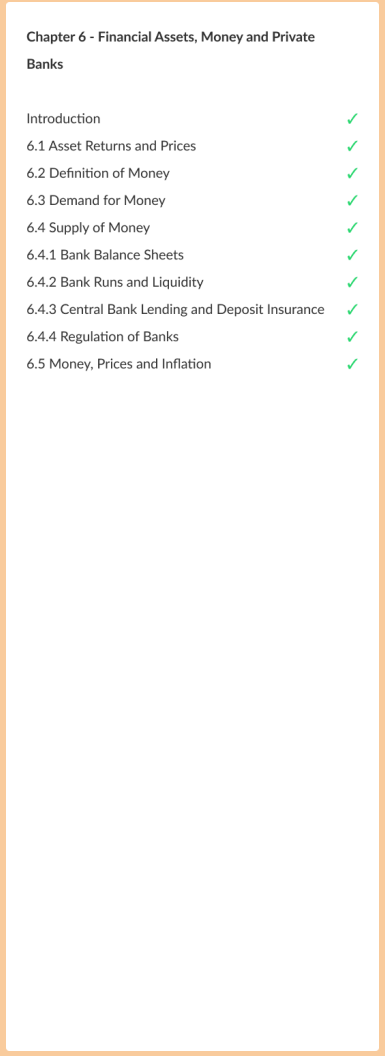
The game in the future will introduce other financial assets like bonds and stocks, providing options for where to allocate resources.

EGS-3.A.3

The game in the future will introduce other financial assets like bonds and stocks, allowing students to examine the inverse relationship between the price of previously issued bonds and interest rates.

EGS-3.A.4

The game in the future will introduce other financial assets like bonds and stocks, which will illustrate the opportunity cost of holding money by showing the interest that could have been earned from holding other financial assets.



AP TOPIC 4.2

AP TOPIC 4.2 Nominal v. Real Interest Rates

EGS-3

Money allows for the comparison of the value of goods and services, while interest rates measure the cost of borrowing money or the return on saving it.

AP LEARNING OBJECTIVE

EGS-3.B

A. Describe the nominal and real interest rates.
B. Explain the relationship between changes in nominal interest rates, expected inflation, and real interest rates.
C. Calculate the nominal and real interest rates.

AP ESSENTIAL KNOWLEDGE

EGS-3.B.1

Acknowledge that a nominal interest rate is the rate of interest paid for a loan, unadjusted for inflation.

EGS-3.B.2

Recognise that lenders and borrowers set nominal interest rates as the sum of their expected real interest rate and expected inflation.

EGS-3.B.3

Understand that a real interest rate can be calculated retrospectively by subtracting the actual inflation rate from the nominal interest rate.

STEP UP CONTENT (Ch. 3)

Chapter 3

Summary: Chapter 3: Interest Rates, Investment and Saving covers the role of interest rates, investment, and saving in a closed economy. It explains nominal vs. real interest rates, the Fisher effect, user cost of capital, and national saving. It also explores the impact of government deficits and business confidence on investment and real interest rates.

Playconomics Gameplay

The game lets players take loans for governments, households, and firms, with a central banking system where wealth deposits create a money supply. Players finance expenditures through borrowing, analysing the nominal interest rate and its relationship with real interest rates, price levels, and inflation. This setup deepens understanding of borrowing, lending, and economic activity.

EGS-3.B.1

Students learn about nominal interest rates by seeing them applied to loans taken by various agents in the game, with these rates unadjusted for inflation.

EGS-3.B.2

The game allows students to recognize how lenders and borrowers set nominal interest rates, factoring in their expected real interest rate and expected inflation.

EGS-3.B.3

Students can calculate the real interest rate retrospectively within the game by subtracting the actual inflation rate from the nominal interest rate through the coin system, providing insight into the true cost of borrowing.

Chapter 3 - Interest Rates, Investment and Saving

AP TOPIC 4.3

AP TOPIC 4.3 Definition, Measurement, and Functions of Money

EGS-3

Money allows for the comparison of the value of goods and services, while interest rates provide a measure of the cost of borrowing or the return on saving money.

AP LEARNING OBJECTIVE

EGS-3.C

A. Describe money and its functions
B. Calculate measures of money using relevant data.

AP ESSENTIAL KNOWLEDGE

EGS-3.C.1

Acknowledge that money is any asset that is widely accepted as a means of payment.

EGS-3.C.2

Recognise that money functions as a medium of exchange, a unit of account, and a store of value.

EGS-3.C.3

Understand that money supply is measured using monetary aggregates, specifically M1 and M2.

EGS-3.C.4

Comprehend that monetary base (often labelled as M0 or MB) includes currency in circulation and bank reserves.

STEP UP CONTENT (Ch. 6)

Chapter 6

Summary: Chapter 6: Financial Assets, Money and Private Banks explores financial assets, focusing on bonds, money, and banking. It examines asset returns, bond pricing, and the definition and functions of money. The chapter also covers the demand and supply of money, bank operations, regulation, and the quantity theory of money linking money supply to inflation.

Playconomics Gameplay

The game, through its accurate simulation, clearly demonstrates the importance of money as a means of payment, a medium of exchange, a unit of account, and a store of value. We are currently working on extending the game to include bank reserves, which are not yet simulated in the game. Currently, we assume that bank reserves fully cover the monetary base. However, the game already provides an intuitive understanding of different monetary aggregates, specifically M1 and M2.

EGS-3.C.1

Students acknowledge that money in the games functions as any asset widely accepted as a means of payment, demonstrated through various in-game transactions.

EGS-3.C.2

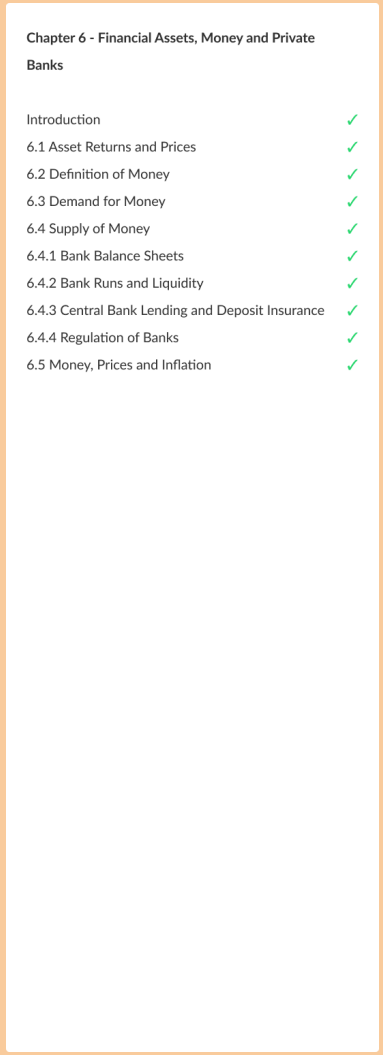
The game illustrates money's multifaceted role through its place as an in-world UI, appearing over agents' heads through a stylised coin system.

EGS-3.C.3

Students understand money supply by exploring the game's representation of monetary aggregates, specifically M1 (currency and demand deposits) and M2 (M1 plus savings accounts and other near monies).

EGS-3.C.4

While the game currently assumes bank reserves fully cover the monetary base, players will eventually comprehend the full concept as the game expands to include bank reserves, illustrating the monetary base (M0 or MB) with currency in circulation and bank reserves.



AP TOPIC 4.4

AP TOPIC 4.4 Banking and the Expansion of the Money Supply

MFP-2

The banking system plays a crucial role in the expansion of the money supply.

AP LEARNING OBJECTIVE

MFP-2.A

A. Define key terms related to the banking system and the expansion of the money supply.
B. Explain how the banking system creates and expands the money supply.
C. Calculate the effects of changes in the banking system using data and balance sheets as appropriate.

AP ESSENTIAL KNOWLEDGE

MFP-2.A.1

Acknowledge that depository institutions, such as commercial banks, organise their assets and liabilities on balance sheets.

MFP-2.A.2

Acknowledge that depository institutions operate under a fractional reserve banking system.

MFP-2.A.3

Recognise that banks' reserves are divided into required reserves and excess reserves.

MFP-2.A.4

Recognise that excess reserves form the basis for the banking system's expansion of the money supply.

MFP-2.A.5

Understand that the money multiplier is the ratio of the money supply to the monetary base.

MFP-2.A.6

Comprehend that the extent of the money supply expansion depends on the size of the money multiplier.

STEP UP CONTENT (Ch. 6)

Chapter 6

Summary: Chapter 6: Financial Assets, Money and Private Banks explores financial assets, focusing on bonds, money, and banking. It examines asset returns, bond pricing, and the definition and functions of money. The chapter also covers the demand and supply of money, bank operations, regulation, and the quantity theory of money linking money supply to inflation.

Playconomics Gameplay

In the current version, the game does not specifically model the role of commercial banks, how these banks organise their assets and liabilities on balance sheets, or the concept of a fractional reserve banking system. This is an interesting topic that we plan to add to the game in future updates. We aim to allow players to create and manage individual banks, enabling players to directly experiment with the concepts of banking and understand its key features. Stay tuned for updates on this exciting development!

MFP-2.A.1

While not yet implemented, future updates in the game will allow students to manage banks and organise their assets and liabilities on balance sheets, providing a practical understanding of depository institutions.

MFP-2.A.2

The planned addition of a fractional reserve banking system will enable students to explore how banks operate under this system, demonstrating the core concepts of modern banking.

MFP-2.A.4

Future gameplay will show how excess reserves form the basis for expanding the money supply, enabling students to experiment with this key banking feature.

MFP-2.A.5

The game will introduce the money multiplier, showing how it connects the money supply to the monetary base, giving players insight into this important financial concept.

MFP-2.A.6

Students will understand that the extent of money supply expansion depends on the size of the money multiplier, which they will be able to experiment with in future updates.

MFP-2.A.7

The game plans to allow students to calculate the maximum value of the money multiplier through an in-world system, offering a deeper understanding of banking mechanics.

Chapter 6 - Financial Assets, Money and Private Banks

	MFP-2.A.7 Evaluate that the maximum value of the money multiplier can be calculated as the reciprocal of the required reserve ratio. **MFP-2.A.8** Understand that the amount predicted by the simple money multiplier may be overstated because it does not account for banks holding excess reserves or the public holding more currency.	**MFP-2.A.3** Students will learn about required and excess reserves once the banking update is implemented, allowing them to see how banks allocate reserves in real time.	**MFP-2.A.8** Future updates will also address how the simple money multiplier might overstate the money supply expansion by not accounting for banks holding excess reserves or the public holding more currency. This will allow students to delve more deeply into the concept of money supply.	

AP TOPIC 4.5

AP TOPIC 4.5 The Money Market

MCRI-3

In the money market, the demand for and supply of money determine the equilibrium nominal interest rate and influence the value of other financial assets.

AP LEARNING OBJECTIVE

MCRI-3.A

A. Define the money market, money demand, and money supply, using graphs as appropriate.

B. Explain the relationship between the nominal interest rate and the quantity of money demanded and supplied, using graphs as appropriate.

MCRI-3.B

Define equilibrium in the money market, using graphs as appropriate.

MCRI-3.C

Explain how nominal interest rates adjust to restore equilibrium in the money market, using graphs as appropriate.

MCRI-3.D

A. Explain the determinants of demand and supply in the money market, using graphs as appropriate.

B. Explain how changes in demand and supply in the money market affect the equilibrium nominal interest rate.

AP ESSENTIAL KNOWLEDGE

MCRI-3.A.1

Recognise that the demand for money illustrates the inverse relationship between the nominal interest rate and the quantity of money people wish to hold.

MCRI-3.A.2

Understand that given a monetary base determined by a country's central bank, the money supply is independent of the nominal interest rate.

MCRI-3.B.1

Investigate that in the money market, equilibrium is achieved when the nominal interest rate is such that the quantity of money demanded equals the quantity of money supplied.

MCRI-3.C.1

Examine the disequilibrium nominal interest rates create surpluses and shortages in the money market. Market forces then drive nominal interest rates toward equilibrium.

MCRI-3.D.1

Understand the factors that shift the demand for money, such as changes in the price level, and factors that shift the supply of money, such as monetary policy, change the equilibrium nominal interest rate.

STEP UP CONTENT (Ch. 7)

Chapter 7

Summary: Chapter 7: Central Banks and Monetary Policy explores the Reserve Bank of Australia's (RBA) role in implementing monetary policy, focusing on inflation targeting, the cash rate, and the monetary policy framework. It explains how the RBA influences short-term and long-term interest rates and discusses the Taylor Rule and policy reaction functions for setting interest rates.

Playconomics Gameplay

In the game, a unified money market allows firms, households, governments, and international entities to borrow and lend, with the interest rate balancing money demand and supply. The game illustrates the inverse relationship between nominal interest rates and money held, the role of a central bank in setting the monetary base, and the impact of interest rate disequilibrium. It also demonstrates how factors like price levels and monetary policies shift money demand and supply.

MCRI-3.A.1

Students observe the demand for money through the agent's interaction with the coin system, which demonstrates money's movement through the player's economy.

MCRI-3.A.2

The coin system also highlights how the monetary base is determined by banks. In addition, the money supply is independent of the nominal interest rate.

MCRI-3.B.1

Students see money market equilibrium when the nominal interest rate balances the quantity of money demanded with the quantity supplied, allowing them to experiment with different market conditions.

MCRI-3.C.1

The game illustrates how disequilibrium nominal interest rates create surpluses or shortages in the money market, with market forces driving rates toward equilibrium, showing the dynamic adjustments in real time via the "tick system" that advances time.

MCRI-3.D.1

Students understand how factors such as changes in the price level or monetary policy shift the demand or supply of money, resulting in changes to the equilibrium nominal interest rate, as represented in the world's graph UI.

Chapter 7 - Central Banks and Monetary Policy

AP TOPIC 4.6

AP TOPIC 4.6 Monetary Policy

MFP-1

Fiscal and monetary policies have short-run effects on macroeconomic outcomes.

AP LEARNING OBJECTIVE

MFP-1.D

A. Describe monetary policy and related terms.
B. Explain the short-run effects of a monetary policy action, using graphs as appropriate.
C. Calculate the effects of a monetary policy action using data and balance sheets as appropriate.

AP ESSENTIAL KNOWLEDGE

MFP-1.D.1

Acknowledge Central banks implement monetary policies to achieve macroeconomic goals - e.g., price stability.

MFP-1.D.2

Understand that the tools of monetary policy may include the central bank's discount rate and other administered interest rates (e.g., interest on reserves), open market operations, and the required reserve ratio. In Australia, which has ample reserves, the Reserve Bank of Australia's key policy tool is interest on reserves.

MFP-1.D.3

Recognise when the central bank conducts an open-market purchase, reserves increase, thereby increasing the monetary base. Conversely, an open-market sale decreases reserves, thereby decreasing the monetary base.

MFP-1.D.4

Understand that when the central bank conducts an open-market purchase (sale) in an economy with limited reserves, the effect on the money supply is greater than the effect on the monetary base due to the money multiplier.

MFP-1.D.5

Recognise that central banks implement

STEP UP CONTENT (Ch. 7)

Chapter 7

Summary: Chapter 7: Central Banks and Monetary Policy explores the Reserve Bank of Australia's (RBA) role in implementing monetary policy, focusing on inflation targeting, the cash rate, and the monetary policy framework. It explains how the RBA influences short-term and long-term interest rates and discusses the Taylor Rule and policy reaction functions for setting interest rates.

Playconomics Gameplay

Currently, the game lacks direct control over central banks, though players can simulate some monetary policy effects by injecting money in single-player mode. While it doesn't yet track central bank operations, the game offers a simplified view of expansionary and contractionary monetary policies, demonstrating their impact on aggregate demand and supply and capturing short-run effects. Future development will include more accurate central bank functionality.

MFP-1.D.1

Although central banks are not directly controlled, students in the game simulate aspects of monetary policy by injecting money into the economy, helping them understand how monetary policy can achieve macroeconomic goals like price stability.

MFP-1.D.2

Future updates will introduce central bank tools like the discount rate, open market operations, and the required reserve ratio, allowing students to explore these mechanisms and their varying impacts based on reserve levels.

MFP-1.D.6

Future gameplay will show how central banks influence nominal interest rates, investment, and consumption, especially in economies with limited versus ample reserves, by adjusting the money supply or administered interest rates.

MFP-1.D.7

Students can experiment with simplified expansionary and contractionary monetary policies to understand their role in addressing output gaps, restoring full employment, and maintaining economic stability.

MFP-1.D.8

The game currently provides a simplified understanding of how monetary policy can influence interest rates, aggregate demand, real output, and the price level, with more detailed mechanics to come.

MFP-1.D.9

Future developments will allow students to use models like the money market model, reserve market model, or AD–AS model to visualise the short-run effects of monetary policy in the game.

MFP-1.E.1

policy to achieve a target range for an overnight interbank lending rate, often referred to as the central bank's policy rate. In Australia, this is known as the Interbank Overnight Cash rate (or Cash rate for short).

MFP-1.D.6
Understand that the central banks can influence the nominal interest rate in the short-run, which subsequently affects investment and consumption. In an economy with ample reserves, changes in the money supply do not significantly impact the nominal interest rate. Instead, the central bank can influence the nominal interest rate by modifying its administered interest rates.

MFP-1.D.7
Examine expansionary or contractionary monetary policies are used to restore full employment when the economy is experiencing a negative (recessionary) or positive (inflationary) output gap.

MFP-1.D.8
Recognise that monetary policy can influence interest rates, aggregate demand, real output, and the price level.

MFP-1.D.9
Understand that the money market model, a reserve market model, and/or the AD–AS model can be used to demonstrate the short-run effects of monetary policy.

MFP-1.E.1
Understand that in reality, there are lags in monetary policy due to the time required to recognize an economic problem and adjust the economy to the policy action.

MFP-1.D.3
Planned features will allow students to see how open-market purchases and sales by a central bank affect reserves and the monetary base, with these actions influencing the broader economy.

MFP-1.D.4
Once implemented, students will understand the money multiplier's role in magnifying the effects of open-market operations on the money supply, particularly in economies with limited reserves.

MFP-1.D.5
Upcoming updates will introduce central bank policy rates, such principles similar to Australia's Interbank Overnight Cash rate, enabling students to see how targeting these rates influences the economy.

The game hints at the reality of lags in monetary policy, showing that even simulated policies take time to recognize economic problems and adjust the economy, with more detailed simulations to come.

AP TOPIC 4.7

AP TOPIC 4.7 The Loanable Funds Market

MCRI-4

The interaction between borrowers, who demand loanable funds, and savers, who supply loanable funds, determines the equilibrium real interest rate.

AP LEARNING OBJECTIVE

MCRI-4.A

D. Describe the loanable funds market, demand for loanable funds, and supply of loanable funds, using graphs as appropriate.

E. Explain the relationship between the real interest rate and the quantity of loanable funds demanded and supplied, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MCRI-4.A.1

Acknowledge that the loanable funds market describes the behaviour of savers and borrowers.

MCRI-4.A.2

Understand that the demand for loanable funds illustrates the inverse relationship between real interest rates and the quantity of loanable funds demanded.

MCRI-4.A.3

Understand that the supply of loanable funds shows the positive relationship between real interest rates and the quantity of loanable funds supplied.

STEP UP CONTENT (Ch. 3)

Chapter 3

Summary: Chapter 3: Interest Rates, Investment and Saving covers the role of interest rates, investment, and saving in a closed economy. It explains nominal vs. real interest rates, the Fisher effect, user cost of capital, and national saving. It also explores the impact of government deficits and business confidence on investment and real interest rates.

Playconomics Gameplay

Taking Loans and Lending Money

In the game, players control all actors who can borrow or lend money via a fully developed loanable funds market. The game demonstrates the inverse relationship between real interest rates and loan demand, and the positive relationship with loan supply. In solo mode, players see how national savings balance public and private savings without international borrowing. The game also explains money market dynamics in an open economy, showing how interest rates balance loanable funds demand and supply. Future updates will introduce automatic firm investments based on favourable interest rates or tax credits, further enhancing market equilibrium insights.

MCRI-4.A.1

The game fully simulates the loanable funds market, allowing players to observe the behaviours of savers and borrowers as they interact within the game's economy.

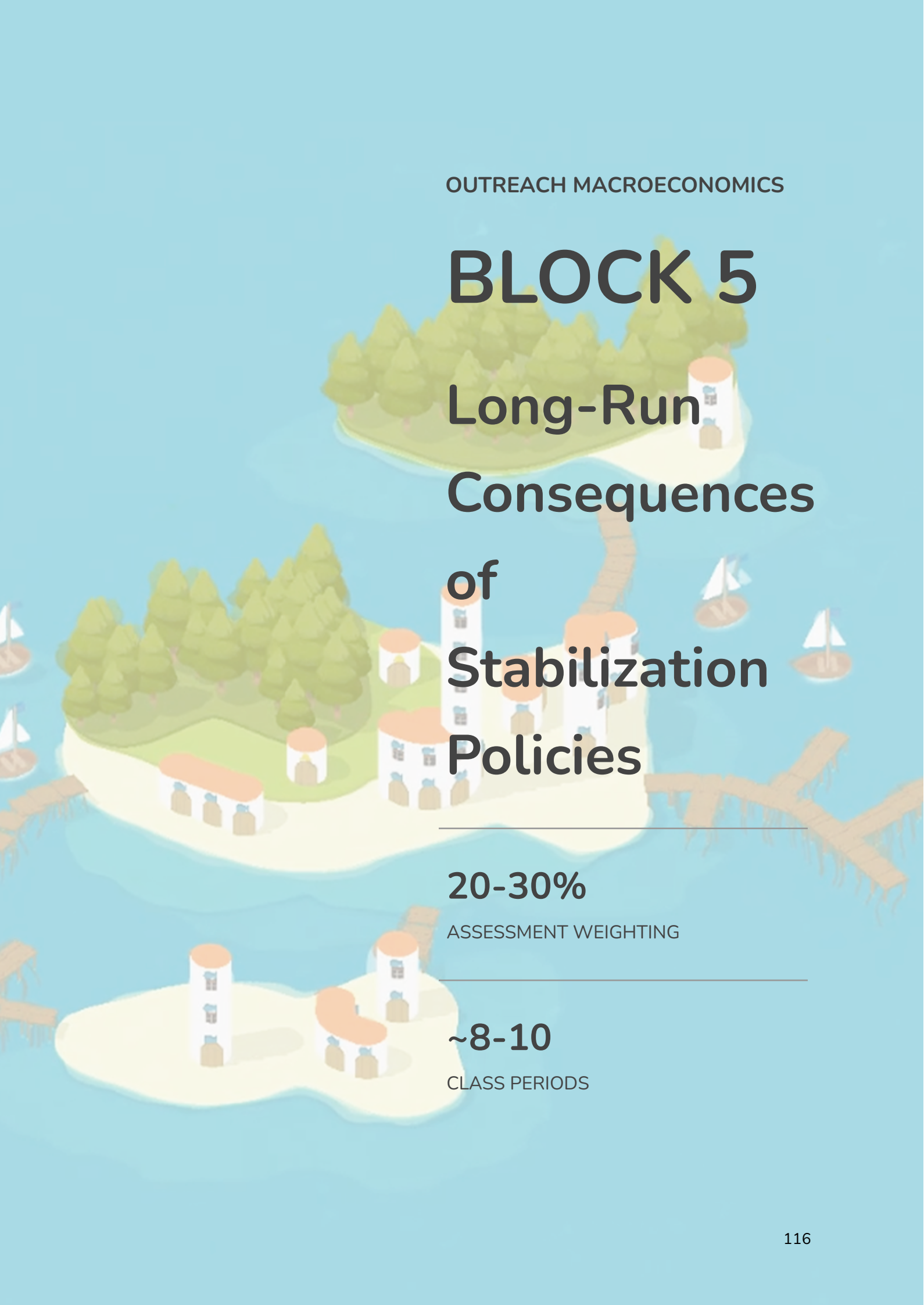
MCRI-4.A.2

The game illustrates the inverse relationship between real interest rates and the demand for loanable funds, helping players understand how borrowing decreases as interest rates rise.

MCRI-4.A.3

Students can see how the supply of loanable funds increases with higher real interest rates, demonstrating the positive relationship between interest rates and the quantity of funds supplied.

Chapter 3 - Interest Rates, Investment and Saving



OUTREACH MACROECONOMICS

BLOCK 5

Long-Run Consequences of Stabilization Policies

20-30%

ASSESSMENT WEIGHTING

~8-10

CLASS PERIODS

BLOCK 5: Long-Run Consequences of Stabilization Policies

HARMONISED WITH AP "UNITS"

20-30%	~8-10
ASSESSMENT WEIGHTING	CLASS PERIODS

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
MACROECONOMICS INDICATORS MCRI	EXCHANGING GOODS AND SERVICES EGS	MODELS IN MACROECONOMICS MIM	MONETARY AND FISCAL POLICY MFP

BLOCK 5: Long-Run Consequences of Stabilization Policies

HARMONISED WITH AP “UNITS”

Learning Journey	Competencies	Assessments
This block serves as a culmination and extension of concepts introduced earlier in the course. For instance, in Blocks 3 and 4, students learned about the impact of public policy on an economy’s output, price levels, and employment in the short term. This block will build on that foundation by exploring the long-term implications of policy decisions and the concept of economic growth. Similarly, in Block 2, students were introduced to the key indicators of inflation and unemployment, and in Block 3, they examined the relationship between these two indicators. Now, students will delve into the Phillips curve model to understand how this relationship plays out in both the short and long term.	In this block, it's important to emphasise the thorough explanation of cause-and-effect relationships. Each link in the chain of cause and effect should be modelled and practised to ensure students can accurately predict and explain the outcomes of various economic actions. Often, students may jump to conclusions, leading to incorrect predictions about the consequences of a policy or action. For instance, a solid explanation of monetary policy's impact on the economy should begin with how monetary policy influences interest rates. If students can’t articulate how changes in interest rates affect consumer and business spending, they may struggle to understand the broader, long-term effects of central bank stabilisation policies. It’s crucial to help students make connections to previously covered topics, enabling them to recognize and build on earlier concepts.	The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they’ve been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they’ll face unique restrictions and objectives. Their results will be showcased on Academia’s homepage, with Play Coins earned from their performance being tracked and collected.

Links to AP Units, Competencies and Key Concepts

AP Macroeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
5.1 Fiscal and Monetary Policy Action in the Short-Run	**Chapter 5 - Government Sector and Fiscal Policy**	2.B Disentangle multiple influencing factors to argue about a particular economic outcome	MONETARY AND FISCAL POLICY (MFP-1)
5.2 The Phillips Curve	**Chapter 8 - Aggregate Demand and Aggregate Supply**	4.B Illustrate your comprehension of a particular economic scenario using a well-labelled diagram or visual.	MODELS IN MACROECONOMICS (MIM-3)
5.3 Money Growth and Inflation	**Chapter 7 - Central Banks and Monetary Policy**	3.A Predict the result of an economic scenario using economic ideas, principles, or theories.	MONETARY AND FISCAL POLICY (MFP-3)
5.4 Government Deficits and the National Debt	**Chapter 5 - Government Sector and Fiscal Policy**	3.A Predict the result of an economic scenario using economic ideas, principles, or theories.	MONETARY AND FISCAL POLICY (MFP-3)
5.5 Crowding Out	**Chapter 5 - Government Sector and Fiscal Policy**	3.B Assess the impact of changes in one or more economic markets.	MONETARY AND FISCAL POLICY (MFP-3)
5.6 Economic Growth	**Chapter 10 - Economic Growth**	2.A Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome, utilising economic ideas, principles, or theories.	EXCHANGING GOODS AND SERVICES (EGS-2) MODELS IN MACROECONOMICS (MIM-1)
5.7 Public Policy and Economic Growth	**Chapter 10 - Economic Growth**	2.A Explain why a specific economic result occurs or determine actions needed to achieve a desired outcome.	MONETARY AND FISCAL POLICY (MFP-4)

MAIN GAMEPLAY ACTIVITIES

Playconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Macroeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
5.1 Fiscal and Monetary Policy Actions in the Short-Run	Chapter 5 - Government Sector and Fiscal Policy	**Simulated Economy** By offering a micro-founded approach and simulation, Playconomics provides a clear representation of the combined effects of expansionary fiscal and monetary policies on economic outcomes such as full employment. Utilising the tick system, the coin system, and in-game graphs, players can observe the gradual impact of these policies on the economy. They can track real-time changes in aggregate demand, real output, price levels, and interest rates as they continue to play and immerse themselves in the simulation.

5.2 The Phillips Curve	Chapter 8 - Aggregate Demand and Aggregate Supply	**Observing Changing Data in Market Cycles** Playconomics offers a comprehensive dataset of game variables, encompassing all major economic indicators typically covered in a standard macroeconomics course. This allows players to observe the transition from short-run to long-run using the tick system and capture data on various short-run and long-run trade-offs. For example, players can track price levels and unemployment and derive concepts like the Phillips curve through gameplay. In single-player solo planet scenarios, this can be done in a controlled environment. However, in multiplayer mode, with various players interacting in markets, the game illustrates how these effects can be confounded by simultaneous shocks, serving as a cautionary tale about the real-world application of these models.	The game's time system also facilitates the natural progression from short-run to long-run expectations, demonstrating how the Phillips curve is influenced by the time frame considered. It highlights what happens in out-of-equilibrium situations and identifies factors that can shift the Phillips curve to a different state.
5.3 Money Growth and Inflation	Chapter 7 - Central Banks and Monetary Policy	**Reading and understanding the Constellation Graph** The Constellation Graph is an innovative interpretation of the data scraped from Playconomics. Accessible in game at any moment, and updated in real-time, it renders all of the markets in the game and all the deals being made.	Through the lens of engaging game variables, players will intuitively understand complex graphing concepts.

5.4 Government Deficits and the National Debt	Chapter 5 - Government Sector and Fiscal Policy	**Debt** Just like in reality, governments often run into debt in Playconomics. A core mechanic is balancing the government debt with taxes and the money market such that citizens are happy and the government is not too much at risk. Governments in debt have to pay interest on their debt.
5.5 Crowding Out	Chapter 5 - Government Sector and Fiscal Policy	**Loans** Both individuals and governments have the ability to take out a loan of money, which they will need to pay back lest they accrue more debt and debt interest. They can also default on their loan, putting a halt to some monetary activities. Only a certain number of loans can be taken out. This setup allows Playconomics to effectively capture the concept of crowding out, where government borrowing directly impacts private sector borrowing by sharing the same market. Through the tick system, the game also demonstrates the long-term effects of crowding out on various investments that would otherwise have occurred in the economy.
5.6 Economic Growth	Chapter 10 - Economic Growth	**Multiplayer** A central aspect of the game design is to immerse players in a simulated multiplayer universe where they compete with each other, thereby emphasising economic growth. Players can access a planet view and specific heat maps to assess the performance of different economies, not just in terms of GDP but also regarding the amount of money circulating in their economy and their productivity levels. This setup creates a strong incentive for players to simulate the real-world pressures toward economic growth. Players must monitor how consumer surplus, producer surplus, and government surplus evolve over time, as these metrics are crucial for earning play coins and course marks.

		The game highlights the relationship between aggregate output and the need for firms to hire more workers to increase production. It also illustrates the concept of average labour productivity, which can be improved through investments in technology, physical capital, and human capital, making workers more productive over time.	This increased productivity affects the aggregate production function, leading to an upward shift in the production possibilities curve, analogous to a rightward shift in the long-run aggregate supply curve.
5.7 Public Policy and Economic Growth	**Chapter 10 - Economic Growth**	**Public Goods** Governments and public policy play a significant role in the Playconomics video game. Public goods and infrastructures are designed to enhance firm productivity and labour force participation, with spillover effects on GDP and economic growth. The government actively invests in infrastructure and technology, which can be immediately observed in the simulated world and appreciated through the interactions of agents in the simulated country.	Beyond infrastructure and technology, public goods such as statues that benefit the population and enhance the country's appeal are also included. These effects can be tracked over time using the tick system, allowing players, especially in the solo planet single-player experience, to methodically observe changes in economic equilibrium as they transition from the short-run to the long-run.

AP TOPIC 5.1

AP TOPIC 5.1 Fiscal and Monetary Policy Actions in the Short-Run

MFP-1

Fiscal and monetary policies have short-run effects on macroeconomic outcomes.

AP LEARNING OBJECTIVE

MFP-1.F

Explain the effects of combined fiscal and monetary policy actions, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MFP-1.F.1

Understand that a combination of expansionary or contractionary fiscal and monetary policies can be used to restore full employment when the economy is experiencing a negative (recessionary) or positive (inflationary) output gap.

MFP-1.F.2

Understand that a combination of fiscal and monetary policies can influence aggregate demand, real output, the price level, and interest rates.

STEP UP CONTENT (Ch. 5)

Chapter 5

Summary: Government Sector and Fiscal Policy explores fiscal policy's impact on GDP, emphasising government spending, taxes, and public debt. It introduces fiscal multipliers, the balanced budget multiplier, and automatic stabilisers. The chapter also examines budget deficits, public debt sustainability, and the four-sector income-expenditure model, incorporating international trade to determine equilibrium GDP.

Playconomics Gameplay

Simulated Economy

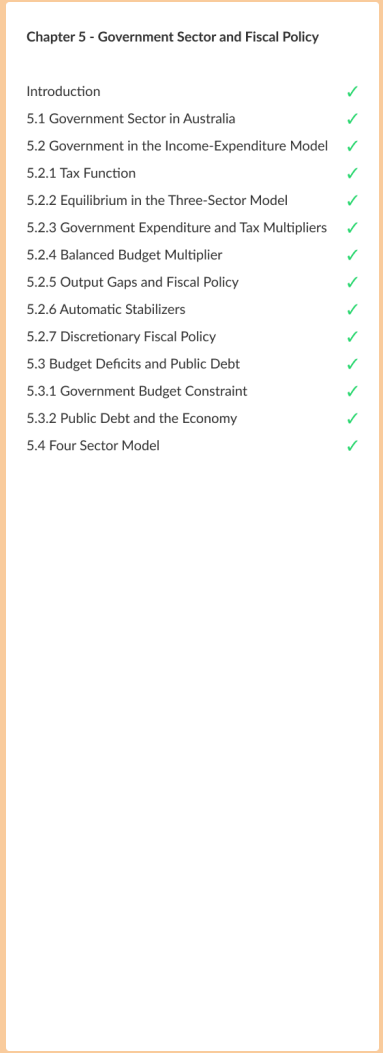
The game offers a micro-founded simulation that clearly represents the combined effects of expansionary fiscal and monetary policies on economic outcomes like full employment. Using the tick system, coin system, and in-game graphs, players can observe real-time changes in aggregate demand, real output, price levels, and interest rates, tracking the gradual impact of these policies as they engage with the simulation.

MFP-1.F.1

Students can use a combination of expansionary or contractionary fiscal and monetary policies to restore full employment, observing their effects on the economy during recessionary or inflationary output gaps. Government policy is freely changeable, and players can experiment with different combinations of policies by interacting with their government building.

MFP-1.F.2

The game allows students to see how fiscal and monetary policies influence aggregate demand, real output, price levels, and interest rates, tracking these changes in real time through a combination of the tick and coin systems.



AP TOPIC 5.2

AP TOPIC 5.2 The Phillips Curve

MIM-3

The Phillips curve model represents the relationship between inflation and unemployment, illustrating how macroeconomic shocks impact both inflation and unemployment.

AP LEARNING OBJECTIVE

MIM-3.A

A. Describe the short-run Phillips curve and the long-run Phillips curve, using graphs as appropriate.
B. Explain short-run and long-run equilibrium in the Phillips curve model, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MIM-3.A.1

Recognise that the short-run trade-off between inflation and unemployment can be illustrated by the downward-sloping short-run Phillips curve (SRPC).

MIM-3.A.2

Acknowledge that an economy is always operating at some point along the SRPC.

MIM-3.A.3

Understand that the long-run relationship between inflation and unemployment is represented by the long-run Phillips curve (LRPC), which is vertical at the natural rate of unemployment.

MIM-3.A.4

Understand that the long-run equilibrium occurs at the point where the SRPC intersects with the LRPC.

MIM-3.A.5

Examine and understand that points to the left of the long-run equilibrium indicate inflationary gaps, while points to the right indicate recessionary gaps.

STEP UP CONTENT (Ch. 8)

Chapter 8

Summary: Aggregate Demand and Aggregate Supply introduces the Aggregate Demand (AD) and Aggregate Supply (AS) model, exploring both short-run and long-run economic outcomes. It covers the derivation of the AD and AS curves, the impact of output gaps, inflation shocks, and potential output changes, and examines policy responses to various economic shocks.

Playconomics Gameplay

Observing Changing Data in Market Cycles

The game provides a comprehensive dataset of economic indicators, enabling players to observe the transition from short-run to long-run using the tick system. Players can track variables like price levels and unemployment, deriving concepts such as the Phillips curve. In solo scenarios, this occurs in a controlled environment, while multiplayer mode shows how simultaneous shocks can complicate these effects, highlighting real-world model limitations. The game also demonstrates the Phillips curve's time frame dependency and how out-of-equilibrium situations and shifting factors can alter its state.

MIM-3.A.1

Students can observe the short-run trade-off between inflation and unemployment through the tick system, visualising it as the downward-sloping short-run Phillips curve (SRPC) in both single-player and multiplayer modes.

MIM-3.A.2

The game illustrates that the economy is always operating at some point along the SRPC, allowing students to track and analyse this dynamic in real-time using game data.

MIM-3.A.3

Students understand the long-run relationship between inflation and unemployment through analysing graphs that represent this data, specifically the Constellation Graph and coin system.

MIM-3.A.4

By ticking time ("market cycles"), the game's graph system demonstrates how long-run equilibrium is achieved in real-time, where the SRPC intersects with the LRPC, showing the natural progression from short-run to long-run.

MIM-3.A.5

Using the graphs students can examine points of inflationary and recessionary gaps by observing positions to the left or right of the long-run equilibrium on the Phillips curve.

Chapter 8 - Aggregate Demand and Aggregate Supply

AP TOPIC 5.3

AP TOPIC 5.3 Money Growth and Inflation

MFP-3

Monetary and fiscal policies have long-run implications.

AP LEARNING OBJECTIVE

MFP-3.A

A. Explain how inflation is a monetary phenomenon, using graphs as appropriate.
B. Define the quantity theory of money.
C. Calculate the money supply, velocity, the price level, and real output using the quantity theory of money.

AP ESSENTIAL KNOWLEDGE

MFP-3.A.1

Examine the occurrence of inflation when the money supply increases too rapidly over a sustained period, while deflation results from a decrease in the money supply at too rapid of a rate for a sustained period.

MFP-3.A.2

Recognise that when the economy is at full employment, changes in the money supply have no long-run effect on real output.

MFP-3.A.3

Understand that in the long-run, the growth rate of the money supply determines the growth rate of the price level (inflation rate) according to the quantity theory of money.

STEP UP CONTENT (Ch. 7)

Chapter 7

Summary: Central Banks and Monetary Policy explores the Reserve Bank of Australia's (RBA) role in implementing monetary policy, focusing on inflation targeting, the cash rate, and the monetary policy framework. It explains how the RBA influences short-term and long-term interest rates and discusses the Taylor Rule and policy reaction functions for setting interest rates.

Playconomics Gameplay

Reading and understanding the Constellation Graph

The Constellation Graph is an innovative interpretation of the data scraped from the game. Accessible in game at any moment, and updated in real-time, it renders all of the markets in the game and all the deals being made. Through the lens of engaging game variables, players will intuitively understand complex graphing concepts.

MFP-3.A.1

The Constellation Graph allows students to observe the effects of rapid changes in the money supply on inflation and deflation, visualising these occurrences in real-time through market interactions.

MFP-3.A.2

Students can recognise, via the Constellation Graph, that when the economy is at full employment, changes in the money supply do not affect real output in the long-run, highlighting the limits of monetary policy.

MFP-3.A.3

The aforementioned graph helps students understand the long-term relationship between the growth rate of the money supply and the inflation rate, aligning with the quantity theory of money as visualised in gameplay.

Chapter 7 - Central Banks and Monetary Policy

AP TOPIC 5.4

AP TOPIC 5.4 Government Deficits and the National Debt

MFP-3

Monetary and fiscal policies have long-term implications.

AP LEARNING OBJECTIVE

MFP-3.B

A. Describe the government budget surplus (deficit) and national debt.
B. Explain the issues associated with the burden of the national debt.

AP ESSENTIAL KNOWLEDGE

MFP-3.B.1

Recognise that the government budget surplus (deficit) is the difference between tax revenues and the sum of government purchases and transfer payments in a given year.

MFP-3.B.2

Understand that the government increases the national debt when it runs a budget deficit.

MFP-3.B.3

Understand that the government must pay interest on its accumulated debt, which increases the national debt and reduces the availability of funds for other purposes.

STEP UP CONTENT (Ch. 5)

Chapter 5

Summary: Government Sector and Fiscal Policy explores fiscal policy's impact on GDP, emphasising government spending, taxes, and public debt. It introduces fiscal multipliers, the balanced budget multiplier, and automatic stabilisers. The chapter also examines budget deficits, public debt sustainability, and the four-sector income-expenditure model, incorporating international trade to determine equilibrium GDP.

Playconomics Gameplay

Debt

Just like in reality, governments often run into debt in the game. A core mechanic is balancing the government debt with taxes and the money market such that citizens are happy and the government is not too much at risk. Governments in debt have to pay interest on their debt.

MFP-3.B.1

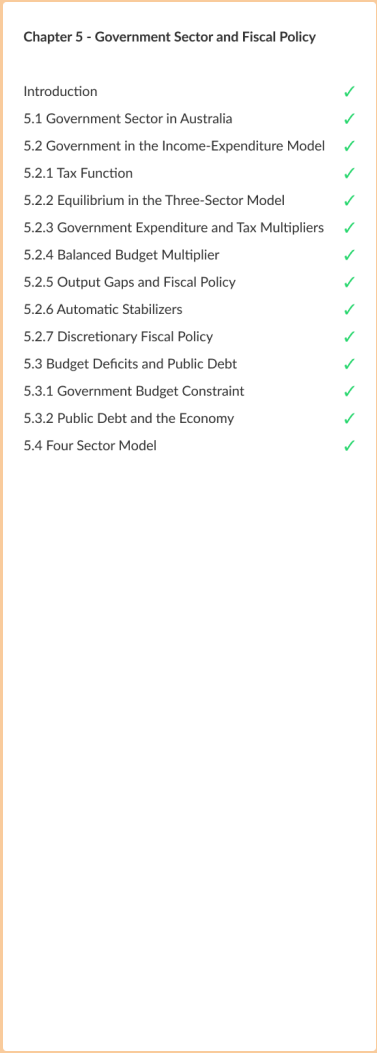
Students can affect a government budget surplus or deficit through applying or altering tax revenues and government spending by interacting with their government hall building, impacting overall debt levels.

MFP-3.B.2

Students intuit through sandbox-style gameplay that when a government runs a budget deficit, it increases the national debt, reflecting real-world fiscal policies.

MFP-3.B.3

Students must manage government debt in the game, understanding that interest payments on accumulated debt increase national debt and limit funds available for other government activities.



AP TOPIC 5.5

AP TOPIC 5.5 Crowding Out

MFP-3

Monetary and fiscal policies have long-term implications.

AP LEARNING OBJECTIVE

MFP-3.C

A. Describe crowding out
B. Explain how fiscal policy may cause crowding out, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MFP-3.C.1

Know that when a government has a budget deficit, it typically borrows money to finance its spending.

MFP-3.C.2

Recognise that loanable funds market model can be used to illustrate the effect of government borrowing on the equilibrium real interest rate and the subsequent crowding out of private investment.

MFP-3.C.3

Evaluate that crowding out refers to the negative impact of increased government borrowing, which results in decreased levels of interest-sensitive private sector spending in the short-run.

MFP-3.C.4

Understand the potential long-run impact of crowding out is a reduced rate of physical capital accumulation, leading to slower economic growth.

STEP UP CONTENT (Ch. 5)

Chapter 5

Summary: Government Sector and Fiscal Policy explores fiscal policy's impact on GDP, emphasising government spending, taxes, and public debt. It introduces fiscal multipliers, the balanced budget multiplier, and automatic stabilisers. The chapter also examines budget deficits, public debt sustainability, and the four-sector income-expenditure model, incorporating international trade to determine equilibrium GDP.

Playconomics Gameplay

Loans

In the game, individuals and governments can take out loans, which must be repaid to avoid accruing debt and interest, with the option to default, halting some activities. Limited loans capture the concept of crowding out, where government borrowing impacts private sector borrowing by sharing the same market. The tick system illustrates the long-term effects of crowding out on potential investments in the economy.

MFP-3.C.1

Students can see how governments borrow money to finance budget deficits, reflecting real-world fiscal policy and its implications.

MFP-3.C.2

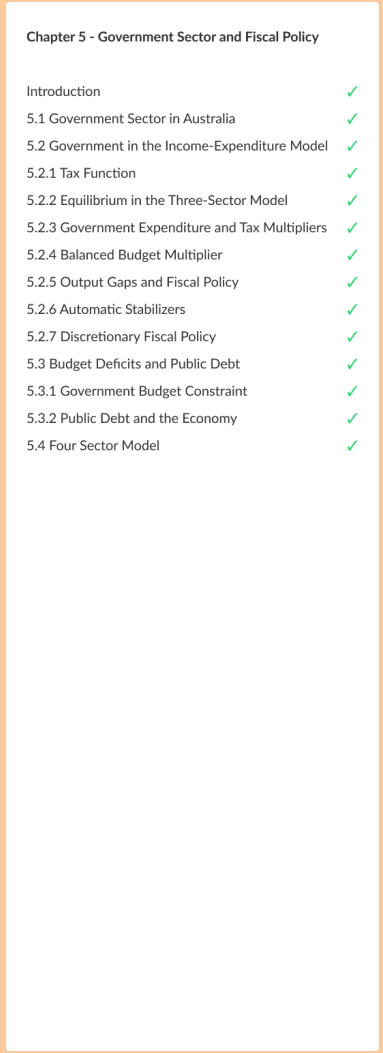
The game uses the loan system to illustrate how government borrowing affects the equilibrium real interest rate, demonstrating the crowding out of private investment through the shared loanable funds market.

MFP-3.C.3

Gameplay captures the concept of crowding out, showing students how increased government borrowing leads to decreased private sector spending, particularly in interest-sensitive areas, in the short-run.

MFP-3.C.4

The tick system in the game demonstrates the long-term effects of crowding out, showing how reduced physical capital accumulation can slow economic growth over time.



AP TOPIC 5.6

AP TOPIC 5.6 Economic Growth

EGS-2

The economy experiences periods of expansion and contraction in the short-run, but sustained economic growth can occur in the long-run.

AP LEARNING OBJECTIVE

EGS-2.B

A. Describe measures and determinants of economic growth.
B. Explain the determinants of economic growth, using graphs and data as appropriate.
C. Calculate per capita GDP and economic growth, using graphs and data as appropriate.

AP ESSENTIAL KNOWLEDGE

EGS-2.B.1

Recognise that economic growth can be measured as the growth rate of real GDP per capita over time.

EGS-2.B.2

Understand that aggregate employment and aggregate output are directly related because firms need to hire more workers to produce more output, holding other factors constant. This relationship is illustrated by the aggregate production function.

EGS-2.B.3

Acknowledge that output per employed worker is a measure of average labour productivity.

EGS-2.B.4

Recognise that productivity is determined by the level of technology, as well as the amount of physical and human capital per worker.

EGS-2.B.5

Understand that the aggregate production function demonstrates that output per capita is positively related to both physical and human capital per capita.

STEP UP CONTENT (Ch. 10)

Chapter 10

Summary: Chapter 10: Economic Growth explores economic growth, its measurement, and key drivers like capital, labour, and productivity. It introduces the Cobb-Douglas production function to explain output. The chapter also covers differences in global income, the role of technology, and uses growth accounting to assess contributions to GDP and productivity growth.

Playconomics Gameplay

Multiplayer

The game immerses players in a competitive multiplayer universe focused on economic growth. Using planet views and heat maps, players assess economies based on GDP, money circulation, and productivity. The game incentivizes monitoring consumer, producer, and government surpluses, which impact play coins and course marks. It demonstrates how increased production requires more workers, linking aggregate output to labour demand. By investing in technology, physical, and human capital, players improve average labour productivity, shifting the aggregate production function and production possibilities curve upward, analogous to a rightward shift in the long-run aggregate supply curve.

EGS-2.B.1

Students track the growth rate of real GDP per capita over time, allowing them to recognize economic growth through planet views and heat maps.

EGS-2.B.2

The game illustrates the direct relationship between aggregate employment and output with an in-world formation, showing how firms must hire more workers to increase production, as depicted by the aggregate production function.

EGS-2.B.3

Students can monitor output versus their employed workers, which acts as a measure of average labour productivity.

EGS-2.B.4

Through visual representations such as an in-world formation for their agents, the game highlights how productivity is influenced by technology and other sources which students can enhance through investments triggered by the dialogue UI.

EGS-2.B.5

The game demonstrates to students that output per capita is positively related to both physical and human capital per capita, as shown by the aggregate production function and shifts in productivity.

Chapter 10 - Economic Growth

AP TOPIC 5.7

AP TOPIC 5.7 Public Policy and Economic Growth

MFP-4

Authorities and organisations implement policies that influence economic growth.

AP LEARNING OBJECTIVE

MFP-4.A

A. Explain public policies aimed at influencing long-run economic growth, using graphs as appropriate.
B. Describe supply-side fiscal policies.

AP ESSENTIAL KNOWLEDGE

MFP-4.A.1

Acknowledge that public policies that influence productivity and labour force participation affect real GDP per capita and economic growth.

MFP-4.A.2

Recognise that government policies that invest in infrastructure and technology impact economic growth.

MFP-4.A.3

Understand that the supply-side fiscal policies influence aggregate demand, aggregate supply, and potential output in both the short-run and long-run by affecting incentives that shape household and business economic behaviour.

STEP UP CONTENT (Ch. 10)

Chapter 10

Summary: Economic Growth explores economic growth, its measurement, and key drivers like capital, labour, and productivity. It introduces the Cobb-Douglas production function to explain output. The chapter also covers differences in global income, the role of technology, and uses growth accounting to assess contributions to GDP and productivity growth.

Playconomics Gameplay

Public Goods

In the game, governments and public policies significantly impact the economy by enhancing firm productivity and labour force participation through investments in public goods and infrastructure. These investments boost GDP and economic growth, with effects observable in real-time interactions within the simulated world. Public goods, like statues, also enhance the country's appeal. Using the tick system, players, especially in solo mode, can track these changes over time, observing the transition from short-run to long-run economic equilibrium.

MFP-4.A.1

The game visually demonstrates to players how public policies that enhance productivity and labour force participation directly influence real GDP per capita and drive economic growth, observable through dynamic and interacting agents in simulation.

MFP-4.A.2

The game illustrates how government investments in infrastructure and technology positively impact economic growth, with players able to track these effects over time.

MFP-4.A.3

Students affect supply-side fiscal policies to shape aggregate demand, aggregate supply, and potential output by altering household and business incentives by interacting with the agents that populate their island. This is visible in both short-run and long-run gameplay dynamics that occur through the "tick system".

Chapter 10 - Economic Growth

OUTREACH MACROECONOMICS

BLOCK 6

Global Trade and Finance

10-13%

ASSESSMENT WEIGHTING

~5-7

CLASS PERIODS

BLOCK 6: Global Trade and Finance

HARMONISED WITH AP "UNITS"

10-13%	~5-7
ASSESSMENT WEIGHTING	CLASS PERIODS

Competence 1	Competence 2	Competence 3	Competence 4
PRINCIPLES AND THEORIES	ECONOMIC INTERPRETATIONS	SITUATION ASSESSMENT	MODELLING VISUALISATION

Key Concept 1	Key Concept 2	Key Concept 3	Key Concept 4
MACROECONOMICS INDICATORS MCRI	EXCHANGING GOODS AND SERVICES EGS	MODELS IN MACROECONOMICS MIM	MONETARY AND FISCAL POLICY MFP

BLOCK 6: Global Trade and Finance

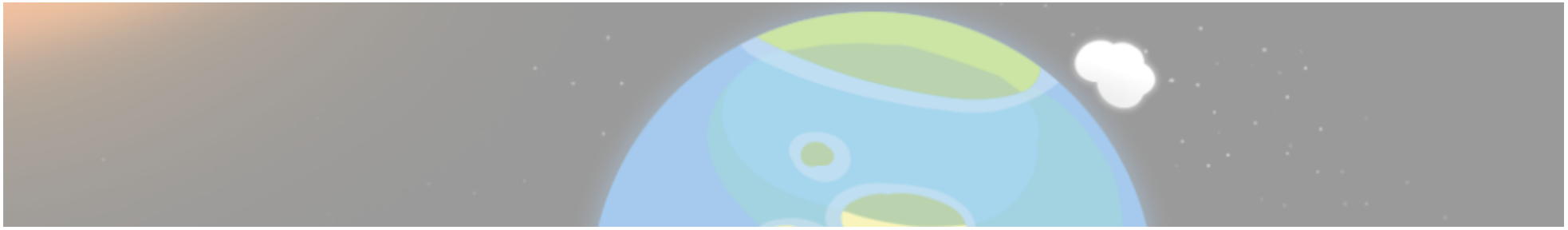
HARMONISED WITH AP “UNITS”

Learning Journey	Competencies	Assessments
This block introduces students to the concept of an open economy, where a nation engages in both product and financial markets with the rest of the world. This concept can be challenging because international economic activities require currency exchange, introducing a new market that must be considered in macroeconomic analysis. Fluctuations in economic activity influence the supply and demand for a nation's currency, thereby impacting its value. Conversely, changes in a currency's value can also affect economic activity within that country. In this block, students will explore the effects of economic policies on exchange rates and the broader implications of these changes.	In this block, students will need to not only demonstrate a deep understanding of economic principles but also apply these concepts to interpret and manipulate economic models within the context of an open economy. They will synthesise knowledge gained throughout the course to explain shifts in net exports, financial capital flows, and policy actions in the foreign exchange market, conveying this understanding through graphical representations. Students often find it difficult to connect concepts across different areas, so it's important to provide them with structured opportunities to practise describing cause-and-effect relationships, both verbally and graphically. Encouraging students to carefully explain each step in the process will help them understand and articulate the link between macroeconomic variables and international movements of goods, services, and financial capital.	The MCQs and SAQs provided in the chapters of this block serve as both formative and summative assessment tools. These questions are designed to align with our extensive bank of test-style questions, which includes hundreds of additional questions that meet the standards of assessments in similar programs. Additionally, embracing the research-oriented side of economics, the STEP UP program creates opportunities for students to participate in large-scale in-game economic experiments, testing the concepts they’ve been learning. Students can either be randomly assigned or choose different planets to join a "challenge event," where they’ll face unique restrictions and objectives. Their results will be showcased on Academia’s homepage, with Play Coins earned from their performance being tracked and collected.

Links to AP Units, Competencies and Key Concepts

AP Macroeconomics Topic	STEP UP Textbook	Competencies	Key Concepts
6.1 Balance of Payment Accounts	**Chapter 9 - International Macroeconomics and Exchange Rates**	1.A Articulate economic ideas, principles, or theories.	EXCHANGING GOODS AND SERVICES (EGS-4)
6.2 Exchange Rates	**Chapter 9 - International Macroeconomics and Exchange Rates**	1.C Differentiate between economic concepts, principles, or theories by discussing their similarities, differences, and constraints.	MACROECONOMICS INDICATORS (MCRI-5)
6.3 The Foreign Exchange Market	**Chapter 9 - International Macroeconomics and Exchange Rates**	4.A Create an accurately labelled diagram or visual to depict an economic theory or market.	MACROECONOMICS INDICATORS (MCRI-5)
6.4 Effect of Changes in Policies and and Economic Conditions on the Foreign Exchange Market	**Chapter 9 - International Macroeconomics and Exchange Rates**	4.C Depict the impact of a change in an economic scenario on a labelled diagram or visual.	MACROECONOMICS INDICATORS (MCRI-5)
6.5 Changes in the Foreign Exchange Market and Net Exports	**Chapter 9 - International Macroeconomics and Exchange Rates**	3.A Predict the result of an economic scenario using economic ideas, principles, or theories.	MACROECONOMICS INDICATORS (MCRI-5)
6.6 Real Interest Rates and International Capital Flows	**Chapter 9 - International Macroeconomics and Exchange Rates**	3.B Assess the impact of changes in one or more economic markets.	MACROECONOMICS INDICATORS (MCRI-5)

MAIN GAMEPLAY ACTIVITIES



Playconomics gameplay mentioned in this section are major gameplay activities that investigates and explores the concepts in the following topics. Other game mechanics may explore these concepts but not as strongly as the listed one. However, these additional game mechanics will be outlined briefly within the individual topic overviews.

AP Macroeconomics Topic	STEP UP Textbook Chapters	STEP UP Gameplay Activities
6.1 Balance of Payments Accounts	Chapter 9 - International Macroeconomics and Exchange Rates	**Tracking Transactions** Playconomics offers an extensive multiplayer environment where players can represent various countries and interact with each other, enabling a detailed analysis of an open economy with international trade and finance. Using our constellation graphs, which track every transaction in the world, players can click on any transaction over a specific period and analyse the buyer and supplier involved. This includes potential money transfers between countries as they borrow and lend money to each other.

		By examining records of net exports, net income from abroad, and net transfers, players can understand a country's current account status, whether in surplus or deficit, and its impact on the balance of trade.	We are currently working on expanding the game to provide a more granular approach to financial markets, integrating the financial transactions into the constellation graphs as well, to make comprehending the balance of payments (BOP) even more straightforward.
6.2 Exchange Rates	Chapter 9 - International Macroeconomics and Exchange Rates	**Different Currencies** In the current version of Playconomics, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.	
6.3 The Foreign Exchange Market	Chapter 9 - International Macroeconomics and Exchange Rates	**Different Currencies** In the current version of Playconomics, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.	

6.4 Effect of Changes in Policies and Economic Conditions on the Foreign Exchange Market	Chapter 9 - International Macroeconomics and Exchange Rates	**Different Currencies** In the current version of Playconomics, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.
6.5 Changes in the Foreign Exchange Market and Net Exports	Chapter 9 - International Macroeconomics and Exchange Rates	**Different Currencies** In the current version of Playconomics, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.
6.6 Real Interest Rates and International Capital Flows	Chapter 9 - International Macroeconomics and Exchange Rates	**Different Currencies** In the current version of Playconomics, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.

AP TOPIC 6.1

AP TOPIC 6.1 Balance of Payments Accounts

EGS-4

Foreign trade accounting measures the flow of goods, services, and financial capital between nations.

AP LEARNING OBJECTIVE

EGS-4.A

A. Describe the current account (CA), the capital and financial account (CFA), and the balance of payments (BOP).
B. Explain how changes in the components of the CA and CFA affect a country's BOP.
C. Calculate the CA, the CFA, and the BOP.

AP ESSENTIAL KNOWLEDGE

EGS-4.A.1

Acknowledge that the current account (CA) records net exports, net income from abroad, and net unilateral transfers.

EGS-4.A.2

Recognise that the CA is not always balanced; it can show a surplus or a deficit. A nation's balance of trade (i.e., net exports), which is part of the current account, can also show a surplus or a deficit.

EGS-4.A.3

Recognise that the capital and financial account (CFA) records financial capital transfers and the buying and selling of assets between countries.

EGS-4.A.4

Understand that the CFA is not always balanced; it can show a surplus (financial capital inflow) or a deficit (financial capital outflow).

EGS-4.A.5

Comprehend that the balance of payments (BOP) is an accounting system that records a country's international transactions over a specific period. It comprises the current account (CA) and the capital and financial account (CFA).

STEP UP CONTENT (Ch. 9)

Chapter 9

Summary: International Macroeconomics and Exchange Rates explores international macroeconomics, focusing on the balance of payments, exchange rates, and national saving and investment in open economies. It introduces the concepts of nominal and real exchange rates, discusses the impact of monetary policy on exchange rates, and examines flexible versus fixed exchange rate regimes.

Playconomics Gameplay

Tracking Transactions

The game offers a rich multiplayer environment where players represent countries and engage in international trade and finance, enabling detailed analysis of an open economy. Using constellation graphs, players can track and analyse every transaction, including cross-border money transfers, to understand a country's current account status and its impact on the balance of trade. The game provides insights into net exports, net income from abroad, and net transfers. Future updates aim to integrate financial transactions into the constellation graphs, making the BOP even easier to comprehend.

EGS-4.A.1

The game' constellation graphs allow students to track net exports, net income, and net transfers, helping them understand how these components are recorded in the CA.

EGS-4.A.2

Through analysing transactions, students can recognize that the current account and balance of trade may show a surplus or deficit, reflecting real-world economic conditions.

EGS-4.A.3

The expansion of constellation graphs to include financial transactions will enable students to derive transfers associated with the CFA.

EGS-4.A.4

A simple, intuitive user experience allows students to notice that the CA and CFA are not always balanced.

EGS-4.A.5

This experience also covers parallel concepts like the BOP.

Chapter 9 - International Macroeconomics and Exchange Rates

EGS-4.A.6

Understand that the transaction that brings money into a country is a credit to its BOP account, while any transaction that sends money out is a debit. The total of all credit entries should equal the total of all debit entries (CA + CFA = 0).

AP TOPIC 6.2

AP TOPIC 6.2 Exchange Rates

MCRI-5

The equilibrium exchange rate in a flexible exchange market is determined by the interaction of buyers and sellers trading one country's currency for another. This exchange rate influences the flow of goods, services, and financial capital between countries.

AP LEARNING OBJECTIVE

MCRI-5.A

A. Describe the exchange rate, currency appreciation, and currency depreciation.
B. Explain how currencies are valued relative to one another.
C. Calculate the value of one currency relative to another.

AP ESSENTIAL KNOWLEDGE

MCRI-5.A.1

Recognise that in the foreign exchange market, one currency is exchanged for another; the price of one currency in terms of another is known as the exchange rate.

MCRI-5.A.2

Understand that a currency becomes more valuable in terms of another currency, it is said to appreciate. Conversely, if a currency becomes less valuable in terms of another currency, it is said to depreciate.

STEP UP CONTENT (Ch. 9)

Chapter 9

Summary: International Macroeconomics and Exchange Rates explores international macroeconomics, focusing on the balance of payments, exchange rates, and national saving and investment in open economies. It introduces the concepts of nominal and real exchange rates, discusses the impact of monetary policy on exchange rates, and examines flexible versus fixed exchange rate regimes.

Playconomics Gameplay

Different Currencies

In the current version of the game, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.

MCRI-5.A.1

Students will visually see how currencies are exchanged in foreign exchange markets, with the exchange rate reflecting the price of one currency in terms of another.

MCRI-5.A.2

Gameplay will enable students to visually understand how a currency appreciates when it gains value against another and depreciates when it loses value, demonstrating these concepts in a practical context.

Chapter 9 - International Macroeconomics and Exchange Rates

AP TOPIC 6.3

AP TOPIC 6.3 The Foreign Exchange Market

MCRI-5

The equilibrium exchange rate in a flexible exchange market is determined by the interaction of buyers and sellers trading one country's currency for another. This exchange rate influences the flow of goods, services, and financial capital between countries.

AP LEARNING OBJECTIVE

MCRI-5.B

A. Describe the foreign exchange market, the demand for currency, and the supply of currency.
B. Explain the relationship between the exchange rate and the quantity of currency demanded (supplied), using graphs as appropriate.

MCRI-5.C

Define the equilibrium exchange rate, using graphs as appropriate.

MCRI-5.D

Explain how exchange rates adjust to restore equilibrium in the foreign exchange market, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MCRI-5.B.1

Understand that the demand for a currency in a foreign exchange market stems from the demand for the country's goods, services, and financial assets. It illustrates the inverse relationship between the exchange rate and the quantity of the currency demanded.

MCRI-5.B.2

Comprehend that the supply of a currency in a foreign exchange market results from making payments in other currencies. It demonstrates the positive relationship between the exchange rate and the quantity of the currency supplied.

MCRI-5.C.1

Recognise that in the foreign exchange market, equilibrium is reached when the exchange rate ensures that the quantity of currency demanded equals the quantity supplied.

MCRI-5.D.1

Understand that the disequilibrium exchange rates lead to surpluses and shortages in the foreign exchange market. Market forces then drive exchange rates toward equilibrium.

STEP UP CONTENT (Ch. 9)

Chapter 9

Summary: International Macroeconomics and Exchange Rates explores international macroeconomics, focusing on the balance of payments, exchange rates, and national saving and investment in open economies. It introduces the concepts of nominal and real exchange rates, discusses the impact of monetary policy on exchange rates, and examines flexible versus fixed exchange rate regimes.

Playconomics Gameplay

Different Currencies

In the current version of the game, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.

MCRI-5.B.1

Students will learn the inverse relationship between exchange rate and currency demand because the game allows the claiming of your own island country, where your society forms.

MCRI-5.B.2

Also, the positive relationship between exchange rate and currency supply is illustrated by the money markets emerging from bustling planets.

MCRI-5.C.1

Students will experience how equilibrium in the foreign exchange market is achieved when the exchange rate ensures that the quantity of currency demanded equals the quantity supplied.

MCRI-5.D.1

Students will experience disequilibrium exchange rates in their economies, leading to surpluses and shortages, with market forces driving exchange rates toward equilibrium.

Chapter 9 - International Macroeconomics and Exchange Rates

AP TOPIC 6.4

AP TOPIC 6.4 Effect of Changes in Policies and Economic Conditions on the Foreign Exchange Market

MFPI-4

In imperfect markets, well-designed government policy can reduce waste.

AP LEARNING OBJECTIVE

MFPI-4.A

Describe the various types of government interventions in imperfect markets.
Demonstrate, using graphs where applicable, how government policies can modify market outcomes in both perfectly and imperfectly competitive markets. c. Using data from a graph or table as necessary, compute the changes in market outcomes that arise from government interventions in both perfectly and imperfectly competitive markets.

AP ESSENTIAL KNOWLEDGE

MFPI-4.A.1

Per-unit taxes and subsidies influence the total price paid by consumers, the net price received by firms, equilibrium quantity, consumer and producer surpluses, deadweight loss, and government revenue or costs. The effects of these changes are contingent on the price elasticity of demand and supply.

MFPI-4.A.2

Lump-sum taxes and subsidies do not alter marginal cost or marginal benefit; they only affect fixed costs.

MFPI-4.A.3

Binding price ceilings and floors impact prices and quantities differently, depending on the structure of the market (such as perfect competition, monopoly, monopolistic competition, or monopsony) and the price elasticities of supply and demand.

MFPI-4.A.4

Government interventions in imperfect markets can enhance efficiency if they appropriately address the incentives causing market failure.

MFPI-4.A.5

Governments may regulate prices to correct inefficiencies caused by monopolies.

MFPI-4.A.6

STEP UP CONTENT (Ch. 9)

Chapter 9

Summary: Chapter 9: International Macroeconomics and Exchange Rates explores international macroeconomics, focusing on the balance of payments, exchange rates, and national saving and investment in open economies. It introduces the concepts of nominal and real exchange rates, discusses the impact of monetary policy on exchange rates, and examines flexible versus fixed exchange rate regimes.

Playconomics Gameplay

Different Currencies

In the current version of the game, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.

MFPI-4.A.1

Students have the ability to freely set per-unit taxes, which have wide-ranging effects on consumers, firms, equilibria and are informed by price elasticity.

MFPI-4.A.2

By using both per-unit and lump sum taxes and subsidies,students learn the difference between the two and can use them in the future to solve market inefficiencies.

MFPI-4.A.3

After the inclusion of price ceilings and floors, students can freely set up and remove these policies via their government interface, noting their strengths and limitations.

MFPI-4.A.4

As students implement new government policy, they quickly get a grasp on the specific incentives that cause market failures which leads to a strong learning experience.

MFPI-4.A.5

Due to the student's power over their government policy, they can quickly correct the inefficiencies caused by monopolies by pulling the right levers.

MFPI-4.A.6

As natural monopolies appear, students may be required to create lump-sum subsidies so that they operate efficiently.

MFPI-4.A.7

While not immediately available, antitrust policies are a useful tool for students to increase market competition where monopolies hold market power.

Chapter 9 - International Macroeconomics and Exchange Rates

A natural monopoly needs a lump-sum subsidy to operate at the allocatively efficient quantity.

MFPI-4.A.7

Governments employ antitrust policies to increase market competitiveness.
Exclusion: Analysing inefficiency and policies related to collusion through graphs is outside the course scope.

AP TOPIC 6.5

AP TOPIC 6.5 Changes in the Foreign Exchange Market and Net Exports

MCRI-5

The equilibrium exchange rate in a flexible exchange market is determined by the interaction of buyers and sellers trading one country's currency for another. This exchange rate influences the flow of goods, services, and financial capital between countries.

AP LEARNING OBJECTIVE

MCRI-5.F

Explain how changes in the value of a currency can lead to changes in a country's net exports and aggregate demand, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MCRI-5.F.1

Examine factors that cause a currency to appreciate lead to a decrease in that country's exports and an increase in its imports. Consequently, net exports will decrease.

MCRI-5.F.2

Examine factors that cause a currency to depreciate lead to an increase in that country's exports and a decrease in its imports. Consequently, net exports will increase.

STEP UP CONTENT (Ch. 9)

Chapter 9

Summary: International Macroeconomics and Exchange Rates explores international macroeconomics, focusing on the balance of payments, exchange rates, and national saving and investment in open economies. It introduces the concepts of nominal and real exchange rates, discusses the impact of monetary policy on exchange rates, and examines flexible versus fixed exchange rate regimes.

Playconomics Gameplay

Different Currencies

In the current version of the game, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.

MCRI-5.F.1

Following the foreign exchange market's introduction, the fluctuation of a country's currency impacts its net exports and imports drastically within Playconomics.

MCRI-5.F.2

In a similar way to a currency becoming more valuable, currency depreciation will also occur and have a generally opposite effect.

Chapter 9 - International Macroeconomics and Exchange Rates

AP TOPIC 6.6

TOPIC 6.6 Real Interest Rates and International Capital Flows

MCRI-5

The equilibrium exchange rate in a flexible exchange market is determined by the interaction of buyers and sellers trading one country's currency for another. This exchange rate influences the flow of goods, services, and financial capital between countries.

AP LEARNING OBJECTIVE

MCRI-5.G

Explain how differences in real interest rates across countries affect financial capital flows, foreign exchange markets, and loanable funds markets, using graphs as appropriate.

AP ESSENTIAL KNOWLEDGE

MCRI-5.G.1

Understand that in an open economy, differences in real interest rates across countries alter the relative values of domestic and foreign assets. Financial capital will flow toward the country with the relatively higher interest rate.

MCRI-5.G.2

Comprehend that central banks can influence the domestic interest rate in the short-run, which subsequently affects net capital inflows.

STEP UP CONTENT (Ch. 9)

Chapter 9

Summary: International Macroeconomics and Exchange Rates explores international macroeconomics, focusing on the balance of payments, exchange rates, and national saving and investment in open economies. It introduces the concepts of nominal and real exchange rates, discusses the impact of monetary policy on exchange rates, and examines flexible versus fixed exchange rate regimes.

Playconomics Gameplay

Different Currencies

In the current version of the game, although we have implemented international trade and finance, we have not yet included different currencies for different countries. This is an addition we plan to introduce next year as we evaluate the educational importance of discussing exchange rates within the simulated economy.

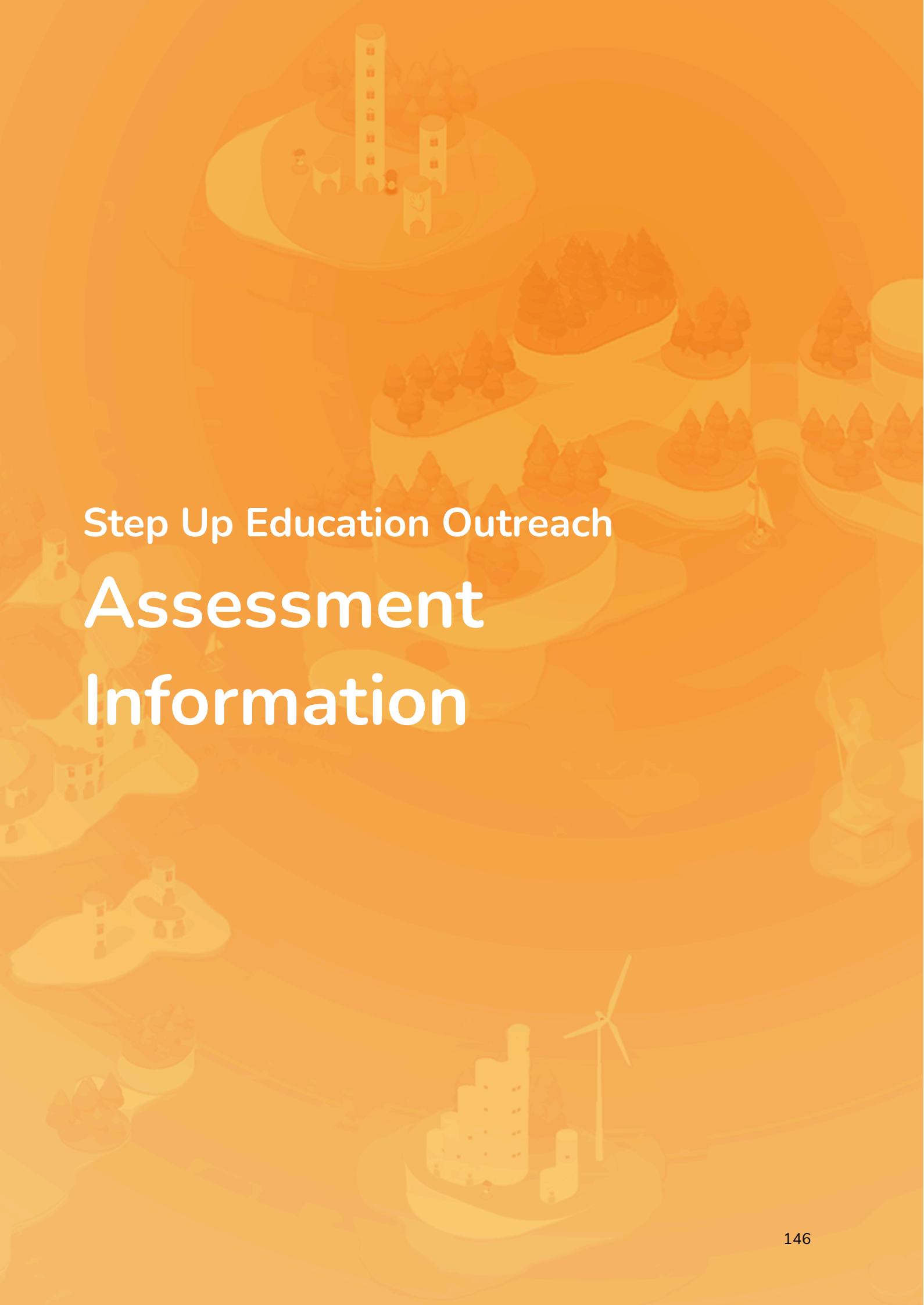
MCRI-5.G.1

After the introduction of the foreign exchange market, students will be able to see how the difference in real interest rates affects the relative value of domestic and foreign assets.

MCRI-5.G.2

The game's current currency system allows students to see the correlation between the adjustment of interest rates and the change in the flow of money.

Chapter 9 - International Macroeconomics and Exchange Rates



Step Up Education Outreach

Assessment Information

Assessment Information

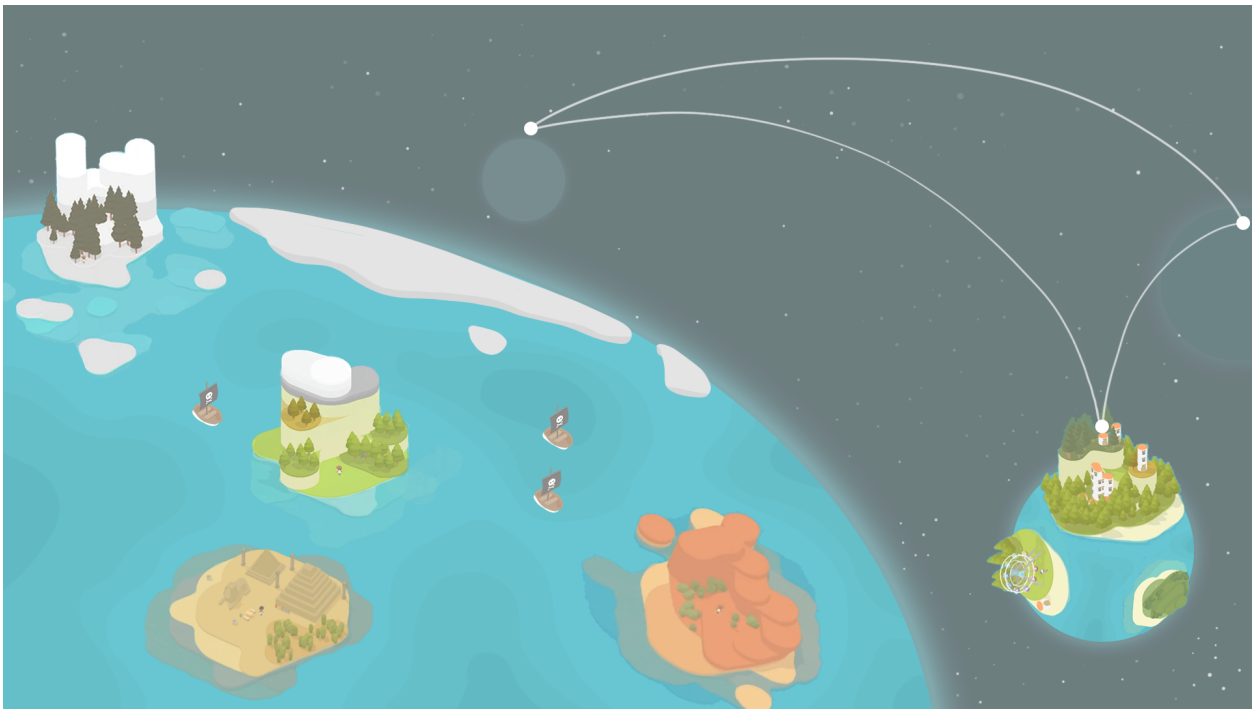
SCORING GUIDELINES

The STEP UP Education Outreach Program gauges students' progress through both formative and summative assessments. Academia focuses on formative assessments through checkpoints at the end of each chapter to evaluate students' understanding. The Playconomics game utilises summative assessments, and at the end of the program provides a summary of the milestones achieved through the amount of Play Coins earned.

Both assessments check and evaluate the Key Concepts and Competencies	
Key Concepts	**Competencies**
Scarcity and Markets	Understanding Principles and Models
Production Choices and Behaviour	Interpretation
Cost, Benefits and Marginal Analysis	Manipulation
Market Inefficiency and Public Policy	Reading Graphs and Visuals

Program	Assessment	Source
Playconomics	Number of Play Coins accumulated through the duration of the program.	Progress is accessible at any time during the program, but the total of Play Coins is finalised at the end of gameplay.
Academia	MCQs and SAQs	11 MCQs and SAQs questions per chapter.
	Review questions	5-10 Review questions (depending on chapter content)

Playconomics – Play Coins



Within Playconomics, students' progress during the game is determined by the leaderboard. As the in-game world progresses, PlayCoins are paid out according to how well a student is ranked in the leaderboard. A student at the top of the leaderboard will amass more PlayCoins over time, and a student at the bottom of the leaderboard will be given all the tools they require to 'climb' the ranks and earn more PlayCoins per market cycle.

- In the end, we've found that students that apply themselves and understand the topic generate more PlayCoins than ones that don't.

At the end of the program, a summative assessment is completed based on the accumulated Play Coins. Usually, this means that a student will get marks according to their total number of PlayCoins divided by the PlayCoins goal and multiplied by the marks allocated to the Playconomics game.

The universe of Playconomics is split into many planets.

- Standard planets are a sandbox-style free-for-all. No Play Coins can be earned, but they serve as a for-fun practice mode for students awaiting the chance to earn marks.
- Assessment planets are where students put their knowledge and skills to the test. These planets are only open for a limited time and often present a unique challenge that player's need to adapt to. In Assessment planets, players will earn Play Coins for how well they play.

All these results can be viewed within the 'Your Progress' tab of Academia.

Academia – Checkpoints

Throughout Academia, students (and their teachers) can review their formative assessment progress through MCQs and SAQs spread across the chapters. The main purpose of these questions is to become a 'checkpoint' for students and teachers to evaluate their understanding and tackle the economic concepts that are lacking in comprehension. Summative assessment occurs at the end of the program, where students will undergo a final exam to test their understanding of skills and concepts learnt throughout the program.

Administrators of the Academia have access to a wide variety of tools, including chapter management, scenario management, surveys, MCQs, SAQs and more.

The combination of both Academia and the Playconomics game' summative assessments will determine the eligibility of university course credits or awards that the students will earn at the end of the program.

Assessment Information

ASSESSMENT PLANETS

"One of the most intriguing questions in both science and economics is "what if." What if the world were different?

What if?

What if we lived in a society without markets, where cooperation was the norm? Or where everyone received the same allocation, regardless of their work? Such a society would be highly equal. To explore these questions, scientists have been using randomised control trials (RCTs). In an RCT, for example, a pharmaceutical company tests a drug by giving it to a randomly selected group of people, while another randomly selected group receives a placebo, like a sugar pill. This method creates two groups that are essentially identical except for the treatment, allowing researchers to isolate the drug's effects from other variables. This is the gold standard in scientific research.

In economics, we aspire to do something similar. We would like to transform societies overnight, giving them entirely new structures, directions, and freedoms, and then observe the outcomes. If the changes improve people's lives, we keep them. However, this is challenging to implement in real life. Economists sometimes take advantage of natural experiments, which occur by accident, such as when governments randomly apply certain policies to specific regions. These natural experiments provide valuable data. Additionally, economists conduct lab experiments, similar to psychologists, in controlled environments where they can assign participants to treatment and control groups to observe differences.

Playconomics offers a unique opportunity for this type of trial. We can create a simulated planet and modify it to reflect interesting variations of our current system. We can then compare this modded planet with a control planet that has standard characteristics. These "planet trials" allow us to see how changes might affect societal outcomes. For instance, we could design a society with closed economies, where trade only occurs within communities and not internationally. Would such a society be better? Some politicians believe so, and it is fascinating to explore this in a model.

Another scenario could involve comparing a society with high equality and numerous small firms to one with concentrated resources and fewer, larger firms. What would be the social impact? In economics, our goal is to create a world where people can express their talents, contribute meaningfully, and feel as free as possible. These trials help us study whether and to what extent this happens under various conditions in the simulation.

In practice, we will open these modded planets, and students will participate in short assessment competitions on each planet. At the end, they can download the data from these modded planets and use AI to build a report. This report will help examine differences between various versions of society, including the impact of different market types or distribution systems on outcomes like population wellbeing and SDGs.
This also means one does not have to actively play the game to be part of these experiments. They can simply observe the planets' activities. If interested in the academic aspect, one can use the data to observe different societal features. This approach enables you to earn course marks that you can claim at universities that support the Playconomics package, giving you the flexibility to tailor the assessment to your preferences. It's not just a video game; it's a model, and active gameplay is not required.

Example of Assessment Planets for Unit 1

Playconomics Universe	
Block	**Targeted gameplay**
Block 1 Basic Economic Theories	**Topic 1.1: Scarcity** Scarcity is a fundamental concept that drives the gameplay experience. Every action a player takes in the game highlights the principle of scarcity. The game begins with players clicking on a terrain tile, such as a beautiful beach, which is a non-rival resource that can be enjoyed by everyone on the island without limiting others. However, the number of available land tiles is limited, making them scarce. Players must make decisions about which terrain types to choose - sea terrain, agricultural land, forests, or mountains - each offering different benefits. Resources like labour and industry placements are also limited, forcing players to weigh their choices carefully. **Topic 1.2: Opportunity Cost and the Production Possibilities Curve (PPC)** Opportunity cost is the value of the best alternative forgone when a decision is made. In the game, each decision involves considering what is sacrificed by choosing one option over another. For example, placing a farm on a piece of land means forgoing the opportunity to use that land for fishing. The game illustrates this through various Planet Trials, where players must decide how to allocate a limited number of tiles to maximise societal welfare. The Production Possibilities Curve (PPC) is introduced to help players understand how to utilise resources, time, and skills to achieve maximum potential both individually and as a society. **1.3 Comparative Advantage and Gains from Trade** Comparative advantage is the ability to produce a good at a lower opportunity cost than others. The game's Planet Heat Map shows different regions excelling in specific activities due to natural talent, cultural predisposition, or environmental factors. Players must decide whether to specialise in certain activities based on comparative advantage, which is determined by calculating opportunity costs. The game features scenarios with equal productivity across regions and significant variations, allowing players to compare the outputs, trade levels, and societal benefits of specialisation and trade. **1.4 Demand** Demand is influenced by consumers' willingness and ability to purchase goods. In the game, players must make decisions about consumption based on their preferences and budget constraints. The principle of diminishing marginal utility is explored, where the additional benefit of consuming more of the same good decreases, leading players to seek variety. Players compare the marginal benefit of consuming a good with the marginal cost,

helping them make decisions that maximise their utility.

1.5 Supply

Supply involves decisions about production and resource allocation. The game introduces different economic systems to illustrate how supply is managed. In a Market Economy Trial, players decide what to produce and who will consume their products, representing a free market economy. In a Command Economy Trial, a central authority makes production decisions and sets prices, limiting market freedom. Players compare the effects of centralised versus decentralised decision-making on wellbeing and engagement.

1.6 Market Equilibrium, Disequilibrium, and Changes in Equilibrium

Market equilibrium occurs when the quantity demanded equals the quantity supplied. The game explores how market equilibrium is achieved and maintained. Players experience scenarios where equilibrium is disrupted by external factors, leading to disequilibrium. They must then make decisions to restore balance. The game also examines the impact of rational and irrational decision-making on market equilibrium. In one Planet Trial, agents make optimal decisions, while in another, they fall victim to fallacies, affecting societal development and wellbeing.

Block 2-6

Descriptions Coming Soon!