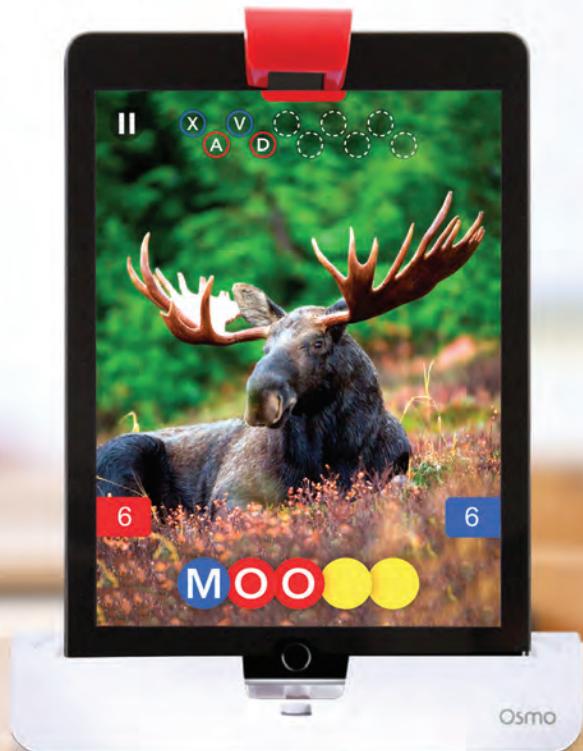


AUSTRALIAN ACHIEVEMENT STANDARDS
TEACHER'S GUIDE TO



Learning System



Hello!

Thanks for your interest in Osmo for the classroom!

Osmo is a learner-led iPad game system that uses physical objects and learning tools in conjunction with iPad. Teachers love Osmo's versatility in the classroom and the way it fosters student learning in key areas like Social-Emotional, Creative Thinking, STEM, and Common Core.

We want to help teachers better integrate Osmo into their classrooms with both ease and fun. Osmo is now much more than just a game. It is a community, a resource, and a whole new way to teach.

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playosmo.com

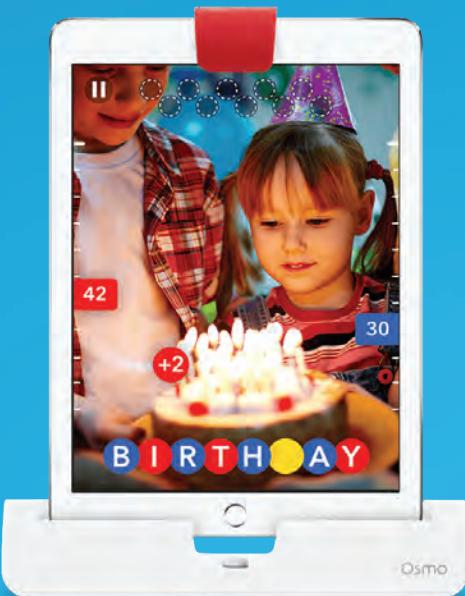
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What's included in this Teacher's Guide

Getting Started	4
Intro to Words, myWords, Tangram, Newton, Masterpiece, Numbers	5
Osmo Community Rewards	11
Grades Pre-K / 1st Curriculum	12
Grades 2nd / 3rd Curriculum	28
Grades 4th / 5th / 6th Curriculum	46
All Ages Curriculum	61
All Ages Coding Curriculum	70
All Ages Coding Journal Notes	125



Introduction to Words, Tangram, Newton, Masterpiece, Numbers



Words game for every curriculum.

Osmo Words is a fun problem-solving game that helps students practice spelling and critical thinking. The app is pre-loaded with games for immediate play. It is customizable for any classroom, which makes it the most versatile of all the apps because content vocabulary and specific spelling lists can be added. Students and teachers can become the game makers. Words provides an opportunity to practice teamwork skills because it can be effectively played by 2 teams of 4 students using a single iPad. It makes a great teaching tool for younger students and a fun review game for older students.

Play Modes

For most students versus mode is for 2 people or players competing against each other. Zen mode is for single player or several students working together. Junior mode works well for PreK and K students.

Strategic Thinking: Pre-populated list of nearly 1000 words and images available.

Inspired by Common Core spelling lists.

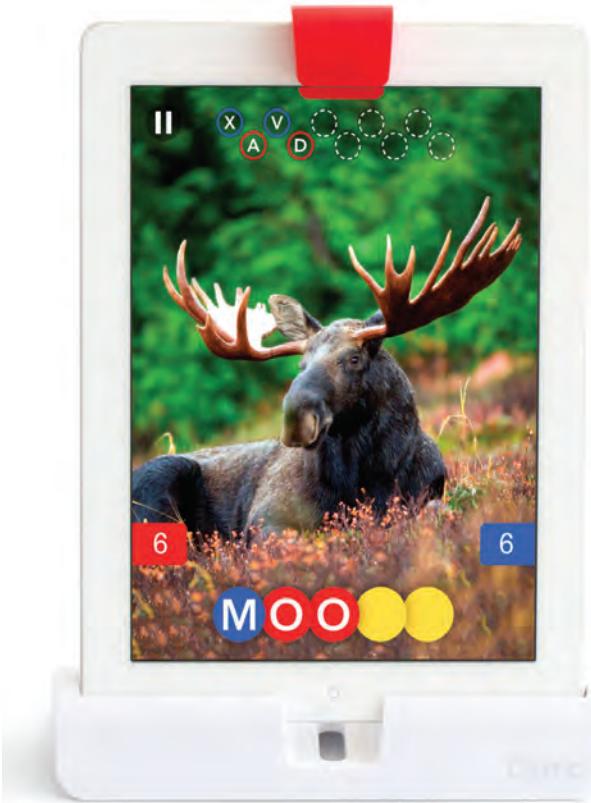
Pre-loaded albums: Fruits & Veggies, Colours, Animals, Counting, Biomes, Recycling, Rocks & Minerals, Cloudy with a Chance of Meatballs, Lilly's Purple Plastic Purse, Parts, Little Engine That Could, Goodnight Moon, Guess How Much I Love You, Short A 3-Letter, Stellaluna, Baby Animals, Short A 4-letter, Short A 5-Letter and more!

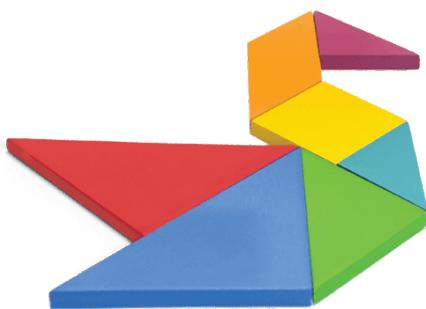
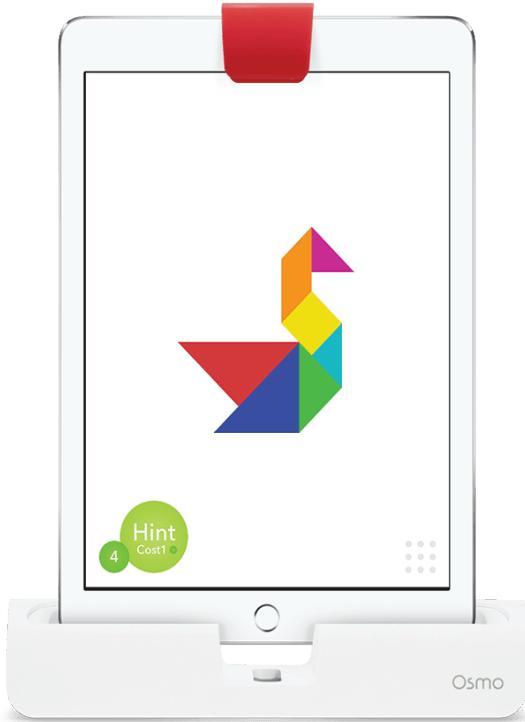
Spelling: Specifically designed for beginning readers, ages PreK-2nd grade. Inspired by Common Core spelling lists.



Create custom Words albums with myOsmo.

1. **Register** at my.playosmo.com
 2. Go to **myWords**
 3. Click “**Create New Album**”
 - Name your album.
 4. **Upload** your desired photos from your device.
 5. **Add** word choices for each photo by clicking on the photo and choosing edit.
 - Choose a difficulty level for each word. You can have multiple words for a single image.
 - Click done when you finish the word list for each photo.
 - If you select an album by clicking on it you will see all the photos. The dots under each photo indicates number of words.
 - If you hover over the photo the words will appear.
 6. To make letters visible, enclose them in **parentheses** like this: (moo)se
 7. Once you are finished, go to your iPad and log in to myWords.
 - Click on library
 8. Click on the album you have just created and it will download.
 - To play only that album, make sure it's the only album checked.
 9. Congratulations! You can now play your custom Words album on your iPad.
- ** Use the gear in the upper right to delete or share your album with others.





Real-time feedback with Tangrams.

Tangrams have challenged the minds of millions for centuries. **Tangram for Osmo** still uses classic wood puzzle pieces that interact with the iPad to give students real-time feedback. This game develops visual spatial abilities, nonverbal reasoning, fine motor skills, and executive functioning. Instant visual and auditory feedback promote self-correction and a sense of mastery, helping students build spatial relational skills and a growth mindset.

Visual: Colour recognition, pattern recognition, flipping / turning, 3D thinking, spatial relational, geometry.

Extensive: Advance and unlock over 600 challenging puzzles.

Collaborative: Students can help each other solve challenges.

Modes

Classic (Play): 600 puzzles with 4 levels of difficulty - each puzzle uses all 7 tangrams.

Junior: 1 level of difficulty - each puzzle uses < 7 tangrams.



Flexible maths learning with Numbers.

Osmo Numbers allows kids to arrange physical tiles, including dots and digits, to make numbers and complete levels. Add by putting more tiles, subtract by removing tiles and multiply by connecting tiles together. Experimenting becomes fast and intuitive. Numbers also helps kids develop confidence by playing maths without the pressure of time or the fear that they'll get the wrong answer. Osmo's real-time feedback lets kids learn through experimentation in a stress-free environment. They also learn at their own pace, free to play in one mode until they're ready for the next. Don't forget! When kids get the idea that there are multiple good ways to solve a problem, maths becomes creative and fun. With a counting, addition, concatenation and multiplication mode, there is a challenge for everybody. The game features an engaging underwater world. Discover and collect over 90 beautiful fish of all kinds, from Rainbowfish to Frankenfish!

Collaborative: Students discuss and share ideas about solutions.

Problem Solving: The game encourages multiple correct answers.



Modes

Counting

Addition

Concatenation

Multiplication



STEM learning with Newton.

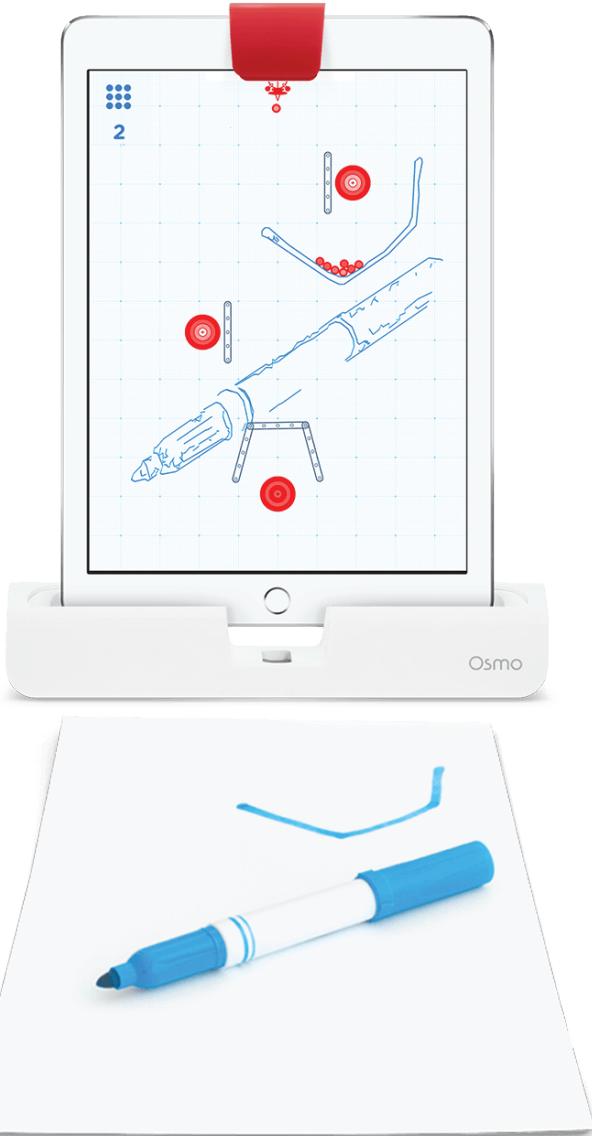
Osmo Newton allows you to use real life objects around you (i.e., paper and pen, pipe cleaners, popsicle sticks) to create structures that magically become part of the Osmo Newton gameplay. Advance through engineering design challenges by manipulating physical objects so that falling drops hit the targets while getting real-time feedback. Unique open play experience fosters creativity and problem solving at the same time. Students are exposed to physics and engineering concepts by predicting where the drops will bounce, estimating distance, how to use or avoid barriers and building structures to change the path of the drops so they hit the targets. There are limitless ways to win, allowing students to create without guidelines - a perfect fit for STEM and Maker movements.

Cause & Effect: As students choose where to place structures, and the shape of those structures, students are given immediate feedback, demonstrating cause and effects physics properties.

Collaborative: Students brainstorm, discuss then implement design solutions.

Modes

Bounce and Roll: 70 levels with increasing difficulty.





Masterpiece for art education.

Masterpiece is a drawing tool that's perfect for art class but also useful across other curriculum for creative projects like book reports and presentations. Fostering imagination and building confidence in creative work, students can draw anything they can imagine. Images are captured via camera or pulled from an internet search, making Masterpiece a modern drawing (or coloring) book. Masterpiece also allows multiple objects from the physical world and digital world (online images) to be combined to create completely new compositions. It nurtures spatial intelligence and builds confidence over time and is a great practice tool for drawing proportions. For young students, drawing can be a roadblock to self-confidence. Now students can feel good about their work.

Collaborative: Masterpiece makes an amazing time-lapse video of each of your drawings that are a fun and unique movie for you to share with friends and family!

Visual: Proportion, spatial relational.

Modes

- Infinite Library
- Camera Capture
- Video Capture

Osmo Community

Are you passionate about Osmo and want to go beyond the classroom? There are multiple ways to help other educators and get recognized for spreading Osmomania. Become an Osmo Ambassador! Osmo Ambassadors make up the part of our Osmo Community that is most passionate about the uses and benefits that Osmo brings to schools. This network of educators goes over and beyond to share about Osmo because of this passion. In exchange for this representation, we provide our ambassadors with support, experiences, and rewards that take their Osmo engagement to the next level. To apply, visit playosmo.com/schools and click 'Join Community'.



Pre-K / K / 1st Grade Curriculum

Our Pre-K to 1st grade Common Core-friendly lesson plans cover many of your early learners' most important needs. We made sure Osmo would not only be enjoyable, but also flexible with every child's learning style and individual pace. Use Osmo for your next lesson to help them read their first book or write their names!

STEM

Add Animal Adaptations	13
Collaborative Tangram (Level 1) (1st)	14
Collaborative Tangram (Level 2) (1st)	15
Discovering Shapes (Pre-K / K / 1st)	16
Playing Osmo Numbers with Red/Yellow Counters (Pre-K / K / 1st)	17
Sort Objects for Recycling (K / 1st)	18

Phonics

Short A CVC Words (Pre-K / K)	19
Short A Practice (K / 1st)	20
Short A 4-Letter Words (1st)	21
Short Vowel "A" Race (K / 1st)	22
What Is the Next Letter in the Alphabet? (Pre-K)	23

Reading

"Goodnight Moon" (Pre-K / K)	24
By Margaret Wise Brown	
"Guess How Much I Love You" (K / 1st)	25
By Sam McBratney	
"The Little Engine That Could" (K / 1st)	26
By Watty Piper	

Handwriting

How Do I Write My Name? (Pre-K / K)	27
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STEM

Add Animal Adaptations

By Jennifer A., Montclaire Elementary School

Grades

K to 5th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, iPad 2 or higher, variety of objects, writing utensils in different colours

Objective

Students are able to identify adaptations on a given animal that provide it protection or allows it to survive in a particular habitat, and they add adaptions (that exist on other animals) to afford it additional protection.

Australian Standards

- ACSSU002
- ACSSU017
- ACSIS213
- ACSIS029

NSW Education Standards

- ST1-4LW-S
- ENe-1A

Activity

1. Individual students or small groups choose an animal photo from the Masterpiece gallery, use an animal photo of their choice from the camera roll, or take a photo of an animal.
2. Students use the Masterpiece app to draw the animal.
3. Students label existing adaptations of the animal that provide protection. For example, on a skunk they might note the spray. Students can also note adaptations that allow the animal to survive in its habitat. For example, on a whale they might note the blubber.
4. In a different colour students add adaptations not present on the animal but found on other animals. The teacher can differentiate the number of adaptations that should be added (4 is suggested, so the picture is not too confusing). These adaptations should be labeled as well.
5. Bonus Students can explain how the additional adaptations they chose would benefit the animal.
6. Modification First grade students could add adaptations to outlines of humans to protect them from different life situations such as snowstorms or riding a skateboard.



STEM

Collaborative Tangram (Level 1)

By Jennifer A., Montclaire Elementary School

Grades

1st

Environment

Student pairs

Materials

Osmo base, Osmo Tangram app,
Tangram tiles, iPad 2 or higher

Objective

Students will work together to complete a Tangram puzzle.

Australian Standards

- ACMMG022
- ACELY1656

NSW Education Standards

- EN1-1A
- MA1-2WM
- MA1-3WM

Activity

1. To begin, students select a puzzle from easy mode (yellow). Student A selects a Tangram piece and hands it to Student B.
2. Student B places the Tangram piece in the correct location.
3. Student A hands Student B another piece and Student B places the piece. This process continues until the puzzle is complete. Student A always selects the piece to be used next and Student B always determines where the piece goes.
4. Discuss that since they are working as a team, Student A can benefit the team by choosing a piece he/she thinks will be easy to place next. Student B can benefit the team by thinking about where that piece best fits.
5. When the pairs have mastered the process of each doing their part, pairs can move to puzzles in medium mode (orange) and then to puzzles in hard mode (red).
6. After a set period of time (suggestion 10-15 minutes) students switch roles.



STEM

Collaborative Tangram (Level 2)

By Jennifer A., Montclaire Elementary School

Grades

1st

Environment

Student pairs

Materials

Osmo base, Osmo Tangram app,
Tangram tiles, iPad 2 or higher

Objective

Students will work together to complete a Tangram puzzle

Australian Standards

- ACMMG022
- ACELY1656

NSW Education Standards

- EN1-1A
- MA1-2WM
- MA1-3WM

Activity

1. To begin, students select a puzzle from easy mode (yellow). Student A will be the “piece mover” and Student B will be the “talker.”
2. Student A selects a Tangram piece and Student B directs Student A where to put it. This might involve directions and vocabulary such as rotate, flip, and diagonal.
3. Student A may only place a piece when directed where and how to do so by Student B. This process continues until the puzzle is complete. Student A always touches the pieces while Student B gives directions about what to do with the pieces.
4. Discuss that since they are working as a team, Student A can benefit the team by choosing a piece he/she thinks will be easy to place next and also by listening carefully and following directions. Student B can benefit the team by thinking about where that piece best fits and giving clear and precise directions.
5. When the pairs have mastered the process of each doing their part, pairs can move to puzzles in medium mode (orange) and then to puzzles in hard mode (red).
6. After a set period of time (suggestion 10-15 minutes) students switch roles.



STEM

Discovering Shapes

By Osmo

Grades

Pre-K / K / 1st

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Tangram app, Tangram tiles, iPad 2 or higher

Objective

Familiarize your students with shapes, colours, and exciting puzzles with this lesson. This is a great introduction to Osmo Tangram and the art of tangram for beginner learners.

Australian Standards

- ACMMG022
- ACELY1656

NSW Education Standards

- ENe-1A
- EN1-1A
- MAe-2WM
- MAe-3WM
- MA1-2WM
- MA1-3WM

Activity

1. Have your students start either individually or together on 'Junior Mode.' The game will lead them through 13 puzzles starting with two shapes and ending with six shapes. Go around asking students to identify the shapes and colours. If you'd like, you can go through the 'Junior Mode' together as a class by playing it on the projector.
2. Then choose play and choose 'Easy.' Students will journey the Tangram world by solving animal puzzles that will eventually take them to the castle, which contains three puzzles of either humans or objects. Unlocking a castle will give them a treasure chest filled with extra hint points!
3. Throughout the lesson, ask students to identify shapes, colours, and the bigger shapes that two smaller shapes come together to create. Look out for the orange parallelogram - the trickiest shape!



STEM

Playing Osmo Numbers with Red/Yellow Counters

By Osmo and Houghton Mifflin Harcourt

Grades

Pre-K to 1st

Environment

Learning stations, groups of 2-3

Materials

Osmo base, HMH red/yellow counters, Osmo Numbers app, iPad version 2 or later

Objective

This lesson coincides with 3 levels of Osmo Numbers: Goldfish Gulf, Boxy Beach, and Rainbow Reef. As children build numbers using referent numbers, they find various ways to represent the numbers and develop strong number sense skills.

Australian Standards

- ACMNA001
- ACMNA012
- ACELY1656

NSW Education Standards

- ENe-1A
- EN1-1A
- MAe-2WM
- MAe-3WM
- MA1-2WM
- MA1-3WM

Activity

Set up Osmo station(s) and introduce the counter tiles to students; a red counter represents the number 5 and a yellow counter represents the number 1.



1. Open the Numbers app and go to the Settings menu.
2. Click on the gear icon on the upper left of the game screen. Check at the bottom of the screen to make sure "Extra Input" is enabled.
3. Go to the main menu and locate the COUNT section.
4. Select the first level: Goldfish Gulf
5. Using the counters, students will create the numbers that they see in the bubbles that are closest to the water on the screen.
6. As students build numbers correctly, the bubbles will pop and they will earn achievements and move to other levels with greater numbers. If they get stuck, they will get real-time feedback about their work at the bottom of the screen.
7. While the children are playing the game, discuss the strategies they use to make decisions. Promote discussion by asking "Why did you build the Numbers using those counters?" or "If you had built the number in a different way would your score be better or not? How do you know?"



STEM

Sort Objects for Recycling

By Jennifer A., Montclaire Elementary School

Grades

K to 5th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Masterpiece for Osmo app, iPad version 2 or higher, various objects, writing utensils of different colours

Objective

Students will show that they can classify items into trash/landfill, glass, paper, plastic, metal, and compost (or a differentiated/abbreviated set of categories determined by the teacher)

Australian Standards

- ACTDEK001
- ACSIS213
- ACSIS029
- ACSHE022

NSW Education Standards

- ENe-1A
- EN1-1A

Activity

Part 1 - Before the Lesson

1. The teacher gathers a variety of items that can be recycled or are trash. Depending on the ability of your students you could also include items for composting. Boxes, plastic silverware, aluminium foil, glass and plastic bottles, banana peels, newspaper, xerox paper that has been used on both sides, cans, and pencil stubs are some examples of what you might include.
2. Set out the items, differentiating the number of items based on your students. You could also let students choose their own items.

Part 2 - Review Recycling

1. Individual students or small groups take a picture of the arranged items.
2. Students use the Masterpiece app to draw the items.
3. Students then use different colours to circle each item depending on how it should be sorted for recycling. For example, glass items might be circled in blue, paper in green, and plastic in red.
4. Students should include a key explaining what sorted group each colour represents.
5. Bonus Teacher determines which categories to include and how many items students should sort.



Phonics

Short A CVC Words

By Osmo

Grades

K

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher

Objective

Students will learn to identify, pronounce, and spell basic CVC words with the short letter 'A.'

Difficulty Levels

Easy: 1 letter missing

Medium: 2 letters missing

Hard: Guess the entire word

Very hard: None

Australian Standards

- ACELY1656
- ACELA1817

NSW Education Standards

- ENe-1A
- ENe-3A
- ENe-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1k5h0utpp1c>
4. Click 'Add to Words game'.
5. Congrats! Now you have the album available in your Osmo Words Library.
*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reviewing consonant sounds and the short letter 'A' with students

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Short A 3-Letter'
3. Hit 'Play'
4. For each photo, encourage students to read the word aloud.
5. When you notice a wrong letter, take the time to compare the sound of the wrong letter with the right letter.
6. For students who have finished earlier or need a challenge, have them switch to 'Medium' or 'Hard' in settings.



STEM

Short A Practice

By Julie L., Watkins Elementary School

Grades

K / 1st

Environment

Learning stations, groups of 2-3

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher

Australian Standards

- ACELY1656
- ACELA1817

NSW Education Standards

- ENe-1A
- ENe-3A
- ENe-5A
- EN1-1A
- EN1-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account or log in
3. Enter link in the URL bar:
<https://my.playosmo.com/words/dashboard/album/1qaan15efpc>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reviewing consonant sounds and the short letter 'A' with students

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Short A 3-Letter'
3. Hit 'Play'
4. For each photo, encourage students to read the word aloud.
5. When you notice a wrong letter, take the time to compare the sound of the wrong letter with the right letter.
6. For students who have finished earlier or need a challenge, have them switch to 'Medium' or 'Hard' in settings.



Phonics

Short A 4-Letter Words with Digraphs

By Osmo

Grades

1st

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher

Objective

Students will learn to pronounce and spell 4-letter words with the short letter 'A.'

Digraphs

-mp, -nk, -nd, th, -sk, tr-

Difficulty Levels

Easy: 1 letter missing

Medium: 2 letters missing

Hard: Guess the entire word

Very hard: None

Australian Standards

- ACELY1659

NSW Education Standards

- EN1-1A
- EN1-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1kpo5uav5kw>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.
*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reviewing digraph sounds and the short letter 'A' with students

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Short A 4-Letter'
3. Hit 'Play'
4. For each photo, encourage students to sound out the word aloud before picking a letter tile.
5. For students that have finished earlier or need a challenge, have them switch to 'Medium' or 'Hard' in settings.



Phonics

Short Vowel “A” Race

By Osmo

Grades

K / 1st

Environment

Groups of 1-4, whole class (split into teams)

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher

Objective

Students will be able to identify a picture, tap out sounds and determine the letters needed to build the word that represents the picture.

Australian Standards

- ACELY1656
- ACELA1817
- ACELY1659

NSW Education Standards

- ENe-1A
- ENe-3A
- ENe-5A
- EN1-1A
- EN1-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
 2. Create an account
 3. Scroll down to ‘Public Albums’
 4. Click on ‘Short A 3-Letter’
*‘Short A 4-Letter’ can be used for a challenge
 5. Click ‘Download’
- *If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After a lesson or introduction on vowels and tapping out words

1. Open the Osmo Words app and click on ‘Library’
2. Deselect all other albums and select only ‘Short A 3-Letter’
3. Hit ‘Play’
4. Have students compete or work together to figure out the picture, sounds, and letter tiles needed. If a student is struggling, have a teammate help them locate the correct letter tile.
5. Challenge Download the ‘Short A 4-Letter’ album. You can also create your own album of Short Vowel pictures that use the other four vowels to replicate this activity.



Phonics

What Is the Next Letter in the Alphabet?

By Osmo

Grades

Pre-K / K

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher

Objective

Help your students remember the next letter in the alphabet with this easy lesson plan.

Difficulty Levels

Easy: 1 Next letter

Medium: None

Hard: None

Very hard: None

Australian Standards

- ACELA1438

NSW Education Standards

- ENe-1A
- ENe-3A
- ENe-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1dx7imj9y4g>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - Sing the ABC's with your students!

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Next letter in the alphabet?'
3. Hit 'Play'
4. Students look at the letter on the screen and then must place the next letter tile. Give them hints by singing the song with them or narrowing down to 3-5 letter tiles.
5. Look out for the tricky "LMNOP" scramble! If needed, take a pause in the middle of the activity to go over "LMNOP" together.
6. Observe repeated mistakes that you can review at the end of the class.

Note:

The album is designed to recognize A as the letter after Z.



Reading

"Goodnight Moon" by Margaret Wise Brown

By Osmo

Grades

Pre-K / K

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher, "Goodnight Moon" by Margaret Wise Brown

Objective

Using framework of Common Core, students will learn new concepts from classic children's books.

Difficulty Levels

Easy: 1-3 consonants missing

Medium: Entire word for regular spelling, 1 syllable words

Hard: Entire word for irregular spelling, 2+ syllable words

Very hard: None

Australian Standards

- ACELA1438

NSW Education Standards

- ENe-1A
- ENe-3A
- ENe-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1f39aymhkhs>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reading "Goodnight Moon" aloud

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Goodnight Moon'
3. Hit 'Play'
4. Students guess and match the correct letters for keywords in the book.
5. If additional copies of the book are available, give a book to each group or student so that they may refer back to the book when they get stuck.



Reading

"Guess How Much I Love You" by Sam McBratney

By Osmo

Grades

K / 1st

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher, "Guess How Much I Love You" by Sam McBratney

Objective

Using framework of Common Core, students will learn new concepts from classic children's books.

Difficulty Levels

Easy: 1-3 consonants missing

Medium: Entire word for 3/4-letter words, consonant digraphs/blends missing, long vowel sounds

Hard: Entire word

Very hard: None

Australian Standards

- ACELA1438

NSW Education Standards

- EN1-1A
- EN1-4A
- EN1-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1k5xkha39c0>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reading "Guess How Much I Love You" aloud

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Guess How Much I Love You'
3. Hit 'Play'
4. Students guess and match the correct letters for keywords in the book.
5. If additional copies of the book are available, give a book to each group or student so that they may refer back to the book when they get stuck.



Reading

"The Little Engine That Could" by Watty Piper

By Osmo

Grades

K / 1st

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher, "The Little Engine That Could" by Watty Piper

Objective

Using framework of Common Core, students will learn new concepts from classic children's books.

Difficulty Levels

Easy: 1-3 consonants missing

Medium: Entire word for regular spelling, 1 syllable words

Hard: Entire word for irregular spelling, 2+ syllable words

Very hard: None

Australian Standards

- ACELA1438

NSW Education Standards

- | | |
|----------|----------|
| • ENe-1A | • EN1-1A |
| • ENe-3A | • EN1-4A |
| • ENe-4A | • EN1-5A |
| • ENe-5A | |

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1k1uste3bpc>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reading "The Little Engine That Could" aloud

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'The Little Engine That Could'
3. Hit 'Play'
4. Students guess and match the correct letters for keywords in the book.
5. If additional copies of the book are available, give a book to each group or student so that they may refer back to the book when they get stuck.



Handwriting

How Do I Write My Name?

By Osmo

Grades

Pre-K / K

Environment

Individual station: *For this activity, we recommend adult supervision.

Materials

Osmo base, Masterpiece app, iPad 2 or higher, writing utensil(s), nametag cutouts on construction paper, each student's name printed largely on a separate sheet of paper

Objective

Students will learn to write their names and create their very own nametag.

Bonus Lesson

Students can also trace individual letters of their names by using the print uppercase and lowercase letter templates in the Misc. gallery of Masterpiece.

Australian Standards

- ACELY1653

NSW Education Standards

- | | |
|----------|----------|
| • ENe-1A | • ENe-4A |
| • ENe-3A | • ENe-5A |

Activity

Have a group discussion about names and how important it is to have names on things and be able to read each other's names.

1. Separate students into groups of 2-3 with set of supplies at each station.
2. Give each station a mini-demo about taking a photo with Masterpiece and then pressing the green button to start drawing.
3. Then, have each student take a photo of their names with Masterpiece. Instruct the class to then place the iPad back onto the Osmo base and start tracing!
4. You can have students first practice for 5 - 10 minutes on regular paper. Once they are ready, they can write their name onto the actual nametag cutout with markers or crayons.
5. When they are done, tell them to click the tiny check button in the lower right of the screen and then the green button. Watch their reaction as they watch a time-lapse video of them writing their names!
6. You can then send each child's video to yourself or their parents by clicking 'Share' or just save it to the iPad camera roll.

2nd / 3rd Grade Curriculum

Instill creativity into your students and help boost their logic skills with these creative Osmo lesson plans. We hope these Common Core-friendly lesson plans not only help you integrate Osmo into your classroom, but also inspire you for endless Osmo-fueled fun!

STEM

Add Animal Adaptations (2nd / 3rd)	29
Change of Seasons or Time of Day (2nd / 3rd)	30
Collaborative Tangram (Level 1) (2nd / 3rd)	31
Collaborative Tangram (Level 2) (2nd / 3rd)	32
Grandfather Tang's Story (beginner) (2nd / 3rd)	33
Playing Osmo Numbers with Red/Yellow Counters (2nd / 3rd)	34
Sort Objects for Recycling (2nd / 3rd)	35

Spelling

How Do You Spell Tomato? (2nd / 3rd)	36
Spell That Animal! (2nd / 3rd)	37
Y is for Yellow (2nd)	38
Rules for -ing Verbs (2nd / 3rd)	39
Rules for Past Tense Verbs (2nd / 3rd)	40
Rules for Plural Nouns (2nd / 3rd)	41

Reading

Comic Summary (3rd)	42
"Cloudy with a Chance of Meatballs" (2nd / 3rd)	43
By Judi Barrett	
"Lilly's Purple Plastic Purse" (2nd / 3rd)	44
By Kevin Henkes	

Cursive

How Do I Write My Name in Cursive? (2nd / 3rd)	45
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STEM

Add Animal Adaptations

By Jennifer A., Montclaire Elementary School

Grades

K to 5th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, iPad 2 or higher, variety of objects, writing utensils in different colours

Objective

Students are able to identify adaptations on a given animal that provide it protection or allows it to survive in a particular habitat, and they add adaptions (that exist on other animals) to afford it additional protection.

Australian Standards

- ACSSU030
- ACSIS042
- ACSSU044
- ACSIS060

NSW Education Standards

- ST1-4LW-S
- EN1-1A
- EN2-1A

Activity

1. Individual students or small groups choose an animal photo from the Masterpiece gallery, use an animal photo of their choice from the camera roll, or take a photo of an animal.
2. Students use the Masterpiece app to draw the animal.
3. Students label existing adaptations of the animal that provide protection. For example, on a skunk they might note the spray. Students can also note adaptations that allow the animal to survive in its habitat. For example, on a whale they might note the blubber.
4. In a different colour, students add additional adaptations not present on the animal but found on other animals. The teacher can differentiate the number of additional adaptations that should be added (4 is suggested so the picture is not too confusing). These adaptations should be labeled as well.
5. Bonus Students can explain how the additional adaptations they chose would benefit the animal.
6. Modification First grade students could add adaptations to outlines of humans to protect them from different life situations such as snowstorms or riding a skateboard.



STEM

Change of Seasons or Time of Day

By Jennifer A., Montclaire Elementary School

Grades

2nd to 5th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, iPad 2 or higher, writing utensil(s)

Objective

Students will take a photo outside showing a particular season or time of day. They will trace the scene using Masterpiece but will change items as necessary to show the scene in a different season or at a different time of day.

Australian Standards

- ACSSU019

NSW Education Standards

- ST1-10ES-S
- EN1-1A
- EN2-1A

Activity

1. Have each student or group of students take a photo outside using the Masterpiece app. The photo should show items that reflect a particular time of day, such as shadows, or a particular season, such as new buds on a tree.
2. The student or group of students will trace their scene. However, they should alter the scene to show a different time of day, such as different shadows or the absence of shadows, or a different season, such as showing fall leaves on the tree.
3. The student or group of students colour the picture to reflect the new season.
4. Bonus Students write about the change(s) they made in their drawing and why.



STEM

Collaborative Tangram (Level 1)

By Jennifer A., Montclaire Elementary School

Grades

2nd / 3rd

Environment

Student pairs

Materials

Osmo base, Osmo Tangram app,
Tangram tiles, iPad 2 or higher

Objective

Students will work together to complete a Tangram puzzle.

Australian Standards

- ACMMG045
- ACELY1792

NSW Education Standards

- EN1-1A
- EN2-1A
- MA1-2WM
- MA2-2WM

Activity

1. To begin students select a puzzle from easy mode (yellow). Student A selects a Tangram piece and hands it to Student B.
2. Student B places the Tangram piece in the correct location.
3. Student A hands Student B another piece and Student B places the piece. This process continues until the puzzle is complete. Student A always selects the piece to be used next and Student B always determines where the piece goes.
4. Discuss that since they are working as a team, Student A can benefit the team by choosing a piece he/she thinks will be easy to place next. Student B can benefit the team by thinking about where that piece best fits.
5. When the pairs have mastered the process of each doing their part, pairs can move to puzzles in medium mode (orange) and then to puzzles in hard mode (red).
6. After a set period of time (suggestion 10-15 minutes) students switch roles.



STEM

Collaborative Tangram (Level 2)

By Jennifer A., Montclaire Elementary School

Grades

2nd / 3rd

Environment

Student pairs

Materials

Osmo base, Osmo Tangram app,
Tangram tiles, iPad 2 or higher

Objective

Students will work together to complete a Tangram puzzle.

Australian Standards

- ACMMG045
- ACELY1792

NSW Education Standards

- EN1-1A
- EN2-1A
- MA1-2WM
- MA2-2WM

Activity

1. To begin, students select a puzzle from easy mode (yellow). Student A will be the “piece mover” and Student B will be the “talker.”
2. Student A selects a Tangram piece and Student B directs Student A where to put it. This might involve directions and vocabulary such as rotate, flip, and diagonal.
3. Student A may only place a piece when directed where and how to do so by Student B. This process continues until the puzzle is complete. Student A always touches the pieces while Student B gives directions about what to do with the pieces.
4. Discuss that since they are working as a team, Student A can benefit the team by choosing a piece he/she thinks will be easy to place next and also listening carefully and following directions. Student B can benefit the team by thinking about where that piece best fits and giving clear and precise directions.
5. When the pairs have mastered the process of each doing their part, pairs can move to puzzles in medium mode (orange) and then to puzzles in hard mode (red).
6. After a set period of time (suggestion 10-15 minutes) students switch roles.



STEM

"Grandfather Tang's Story" by Ann Tompert (beginner)

By Osmo

Grades

2nd / 3rd

Environment

Individual stations, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Tangram app, Tangram tiles, iPad 2 or higher, "Grandfather Tang's Story" by Ann Tompert

Objective

"Grandfather Tang's Story" and Osmo Tangram make teaching geometry both easy and creative. By the end of the lesson plan, your students will be familiar with basic geometry and how shapes can turn into bigger things!

Australian Standards

- ACMMG045
- ACELY1792

NSW Education Standards

- EN1-1A
- EN2-1A
- MA1-2WM
- MA2-2WM

Activity

1. Read aloud "Grandfather Tang's Story" and explain to students that a tangram is an ancient Chinese puzzle.
2. Introduce the 7 tangram pieces, counting the number of sides they have to practice Common Core Standards.
 - 2 large triangles - red and blue
 - 1 medium triangle - green
 - 2 small triangles - purple and teal
 - 1 square - yellow
 - 1 parallelogram - orange
3. Let them know that just like Grandfather Tang did in the book, they will also be creating various animals, shapes, objects, and humans with tangram.
4. Start the Tangram app and go to 'Tangram'
5. Have them start on 'Easy' and solve a few animal puzzles. However, when the orange bubbles start to appear, instruct them to start solving the orange puzzles unless they find them too difficult.
6. By the end of class, the majority of students should have solved at least 5-8 orange puzzles and 1 castle puzzle! You can have them go back to the game anytime to continue their progress.



STEM

Playing Osmo Numbers with Red/Yellow Counters

By Osmo and Houghton Mifflin Harcourt

Grades

2nd / 3rd

Environment

Individual stations, groups of 2-3,
classroom with projector

Materials

Osmo base, HMH red/yellow counters,
Osmo Numbers app, iPad 2 or higher

Objective

This lesson coincides with 3 levels of Osmo Numbers: Blenny Bay, Clownfish Coast, Betta Bluff, Butterfly Beach, Seahore Strait. As children build numbers using referent numbers, they find various ways to represent the numbers and develop strong number skills.

Australian Standards

- ACMNA026
- ACMNA055

NSW Education Standards

- EN1-1A
- EN2-1A
- MA1-2WM
- MA2-2WM

Activity

Set up Osmo station(s) and introduce the counter tiles to students; a red counter represents the number 5 and a yellow counter represents the number 1.



1. Open the Numbers app and go to the Settings menu.
2. Click on the gear icon on the upper left of the game screen. Check at the bottom of the screen to make sure "Extra Input" is enabled.
3. Click play, and locate the COUNT section.
4. Select the fourth level: Blenny Bay
5. Using the counters, students will build numbers 1 through 14 seen in the bubbles that are closest to the water on the screen.
6. As students build numbers correctly, the bubbles will pop and they will earn achievements and move to other levels with greater numbers. As an aid, they will get real-time feedback about their work at the bottom of the screen.
7. While the children are playing the game, discuss the strategies they use to make decisions. Promote discussion by asking "Why did you build the Numbers using those counters?" or "If you had built the number in a different way would your score be better or not? How do you know?"



STEM

Sort Objects for Recycling

By Jennifer A., Montclaire Elementary School

Grades

K to 5th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Masterpiece for Osmo app, iPad version 2 or higher, various objects, writing utensils of different colours

Objective

Students will show that they can classify items into trash/landfill, glass, paper, plastic, metal, and compost (or a differentiated/abbreviated set of categories determined by the teacher).

Australian Standards

- ACSHE035

NSW Education Standards

- EN1-1A
- EN2-1A
- GE2-3

Activity

Part 1 - Before the Lesson

1. The teacher gathers a variety of items that can be recycled or are trash. Depending on the ability of your students you could also include items for composting. Boxes, plastic silverware, aluminium foil, glass and plastic bottles, banana peels, newspaper, xerox paper that has been used on both sides, cans, and pencil stubs are some examples of what you might include.
2. Set out the items, differentiating the number of items based on your students. You could also let students choose their own items.

Part 2 - Review Recycling

1. Individual students or small groups take a picture of the arranged items.
2. Students use the Masterpiece app to draw the items.
3. Students then use different colours to circle each item depending on how it should be sorted for recycling. For example, glass items might be circled in blue, paper in green and plastic in red.
4. Students should include a key explaining what sorted group each colour represents.
5. Bonus Teacher determines which categories to include and how many items students should sort.



Spelling

How Do You Spell Tomato?

By Osmo

Grades

2nd / 3rd

Environment

Individual or station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students identify and spell different fruits and vegetables.

Spelling Words

pineapple	strawberry	mango
mushroom	kiwi	banana
cherry	watermelon	broccoli
corn	pear	lettuce
onion	tomato	apple

Difficulty Levels

Easy: 1-3 consonants for common fruits and vegetables

Medium: 50-75% of the word for all fruits and vegetables

Hard: Entire word

Very hard: Entire word in plural form

Australian Standards

- ACELA1474
- ACELA1485
- ACELY1789

NSW Education Standards

- EN1-1A
- EN2-1A
- EN1-5A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1jq24rqaoe8>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Fruits & Veggies'
3. Hit 'Play'
4. Have students start on 'Easy' on Zen mode. This encourages teamwork in a learning environment.
5. After one round, have them play 'Medium' on Versus mode. Remind them that some fruits and vegetables have short and long names, such as 'peas' and 'green peas.'
6. Challenge them to play 'Hard' or 'Very Hard' if they finish early or during break time.



Spelling

Spell That Animal!

By Osmo

Grades

2nd / 3rd

Environment

Individual or station, groups of 2-3

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher

Objective

Students identify and spell different animals.

Spelling Words

sloth	kangaroo	tiger
octopus	lizard	butterfly
cheetah	crocodile	elephant
turtle	gorilla	giraffe
sea turtle	pigeon	turkey
rhinocerus	pig	hamster
zebra	whale shark	goldfish
owl	dolphin	shark
penguin	peacock	skunk

Difficulty Levels

Easy: 1-3 consonants for common animals

Medium: 50-75% of the word for all animals

Hard: Entire word

Very hard: None

Australian Standards

- ACELA1474
- ACELA1485
- ACELY1789

NSW Education Standards

- EN1-1A
- EN2-1A
- EN1-5A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1k0dmb7ql1c>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Animals'
3. Hit 'Play'
4. Have students start on 'Easy' on Zen mode. This encourages teamwork in a learning environment.
5. After one round, have them play 'Medium' on Versus mode. Remind them that some animals have short and long names, such as 'rhino' and 'rhinocerus.'
6. Challenge them to play 'Hard' if they finish early or during break time.



Spelling

Y is for Yellow

By Osmo

Grades

2nd

Environment

Individual or station, groups of 2-3

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher

Objective

Students identify and spell different colours.

Spelling Words

red	purple
orange	pink
yellow	brown
green	black
blue	white

Difficulty Levels

Easy: 1-2 consonants for basic

colours *Medium:* Consonant digraphs

Hard: Entire word

Very hard: None

Australian Standards

- ACELY1789
- ACELA1485

NSW Education Standards

- EN1-1A
- EN1-5A
- EN2-1A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1k5fd1p8j5s>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Colours'
3. Hit 'Play'
4. Have students start on 'Easy' on Zen mode. This encourages teamwork in a learning environment.
5. After one round, have them play 'Medium' on Versus mode. Make sure they know the difference between yellow and gold!
6. Challenge them to play 'Hard' if they finish early or during break time.



Spelling

Rules for -ing Verbs

By Jennifer A., Montclaire Elementary School

Grades

2nd / 3rd

Environment

Learning Stations, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students practice the different rules
for adding -ing to a verb.

Suggested Verb List

- One syllable verb ending in consonant + short vowel + consonant: running, digging, sitting, hopping, swimming
- Verbs ending in silent e: writing, changing, dancing, smiling, riding, biking
- Regular verbs: throwing, picking, eating, sleeping, spraying, floating, carrying

Australian Standards

- ACELY1789
- ACELA1826
- ACELA1485
- ACELA1471

NSW Education Standards

- EN1-1A
- EN2-1A
- EN1-5A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Click "Create your own"
4. Upload a picture for each verb (using suggested list)
5. Then, click on it and input the -ing verb
6. Click 'Download' to install to the iPad.
7. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only the album you created
3. Hit 'Play'
4. Have students start on easy level on Zen mode. This encourages teamwork in a learning environment.
5. After one round, have them play medium level on Zen mode.
6. If there is time, challenge them to play medium level on Versus mode.



Spelling

Rules for Past Tense Verbs

By Jennifer A., Montclaire Elementary School

Grades

2nd / 3rd

Environment

Learning stations, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students practice the different rules
for adding -ed to a verb.

Suggested Verb List

- One syllable verbs ending in short vowel + consonant: tapped, stopped, skipped, fanned
- Verbs ending in silent e: lived, cared, baked, skated, traded
- Verbs ending in consonant + y: dried, carried, stirred, cried, married
- Irregular verbs: sent, taught, ran, swam, ate, told, threw
- Regular verbs: started, washed, cleaned, walked, boiled, talked

Australian Standards

- ACELY1789
- ACELA1826
- ACELA1485
- ACELA1471

NSW Education Standards

- EN1-1A
- EN2-1A
- EN1-5A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Click "Create your own"
4. Upload a picture for each verb (using suggested list)
5. Then, click on it and input the past tense verb
6. Click 'Download' to install to the iPad.
7. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - Review rules for past tense verbs

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only the album you created
3. Hit 'Play'
4. Have students start on easy level on Zen mode. This encourages teamwork in a learning environment.
5. After one round, have them play medium level on Zen mode.
6. If there is time, challenge them to play medium level on Versus mode.



Spelling

Rules for Plural Nouns

By Jennifer A., Montclaire Elementary School

Grades

2nd / 3rd

Environment

Learning Stations, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students practice rules for making nouns plural.

Suggested Verb List

- *Nouns ending in s/x/sh/ch:*
brushes, boxes, buses, benches,
witches, dishes, lunches
- *Nouns ending in consonant + y:*
dictionaries, candies, stories,
copies, babies
- *Nouns ending in f or fe:* knives,
calves, shelves, leaves
- *Irregular nouns:* feet, women,
mice, children, fish
- *Regular nouns:* phones, pencils,
desks, forks, spoons, baskets

Australian Standards

- ACELY1789 • ACELA1826
- ACELA1485 • ACELA1471

NSW Education Standards

- EN1-1A • EN2-1A
- EN1-5A • EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Click "Create your own"
4. Upload a picture for each noun (using suggested list)
5. Then, click on it and input the plural noun
6. Click 'Download' to install to the iPad.
7. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - Review rules for making nouns plural

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only the album you created
3. Hit 'Play'
4. Have students start on easy level on Zen mode. This encourages teamwork in a learning environment.
5. After one round, have them play medium level on Zen mode.
6. If there is time, challenge them to play medium level on Versus mode.



Reading

Comic Summary

By Julie Leverington, Watkins Elementary School

Grades

3rd

Environment

Individual station

Materials

Osmo base, Masterpiece for Osmo app, iPad version 2 or higher, writing utensil(s), drawing paper

Objective

Students will use Osmo to create a summary of a story.

NSW Education Standards

- EN1-1A
- EN2-1A
- EN2-4A

Activity

1. Choose a book for your class or have students choose a book themselves.
2. Set up Osmo and open Masterpiece app.
3. Using Masterpiece's gallery, students choose images that relate to the book's main character and setting. They will draw them in the format of a comic book, using a series of squares.
4. If they are unable find relevant images in the Gallery, tell them to take a photo of illustrations from the book and use it to draw with Masterpiece.
5. Modification Students can draw a summary of the plot by drawing a main event of the book within each square.



Reading

"Cloudy with a Chance of Meatballs" by Judi Barrett

By Osmo

Grades

2nd / 3rd

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher, "Cloudy with a Chance of Meatballs" by Judi Barrett

Objective

Using framework of Common Core, students will learn new concepts from classic children's books.

Difficulty Levels

Easy: Easy to guess

Medium: Less obvious

Hard: Entire word for less obvious words, compound words

Very hard: None

Australian Standards

- ACELY1789 • ACELA1826
- ACELA1485 • ACELT1833

NSW Education Standards

- EN1-1A • EN2-1A
- EN1-5A • EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1jnvo23x4hs>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reading "Cloudy with a Chance of Meatballs" aloud

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Cloudy with a Chance of Meatballs'
3. Hit 'Play'
4. Students guess and match the correct letters for keywords in the book. Encourage them to use their letter tiles wisely by using common vowels and consonants first.
5. If additional copies of the book are available, give a book to each group or student so that they may refer back to the book when they get stuck.



Reading

"Lilly's Purple Plastic Purse" by Kevin Henkes

By Osmo

Grades

2nd / 3rd

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher, "Lilly's Purple Plastic Purse" by Kevin Henkes

Objective

Using framework of Common Core, students will learn new concepts from classic children's books.

Difficulty Levels

Easy: Easy to guess

Medium: Less obvious

Hard: Entire word for less obvious words, compound words

Very hard: None

Australian Standards

- ACELY1792 • ACELA1485
- ACELY1789 • ACELA1826

NSW Education Standards

- EN1-1A • EN2-1A
- EN1-5A • EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1ksbwbjczy8>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reading "Lilly's Purple Plastic Purse" aloud

1. Ask students how they felt on their first day of school. Connect with them about Lilly's behavior before and after.
2. Open the Osmo Words app and click on 'Library'
3. Deselect all other albums and select only 'Lilly's Purple Plastic Purse'
4. Hit 'Play'
5. Students guess and match the correct letters for keywords in the book. Encourage them to use their letter tiles wisely by using common vowels and consonants first.
6. Some photos may be hard to guess - be ready to give hints!



Handwriting

How Do I Write My Name in Cursive?

By Osmo

Grades

2nd / 3rd

Environment

Individual station: *For this activity, we recommend adult supervision

Materials

Osmo base, Osmo Masterpiece app, iPad 2 or higher, writing utensil(s), nametag cutouts on construction paper

Objective

Students will practice writing in cursive by tracing cursive letter templates provided in the Masterpiece app. Then, they will create their very own nametags in cursive.

Australian Standards

- ACELY1684
- ACELY1673

NSW Education Standards

- EN1-1A
- EN1-3A
- EN2-1A
- EN2-3A

Activity

Have a group discussion about names and how important it is to have names on things and be able to read each other's names.

1. Separate students into groups of 2-3 with set of supplies at each station.
2. Tell your students to open the Masterpiece app and click on the 'Misc' folder in the Gallery (it has the U.S. map on it).
3. Then, have them practice tracing each letter in their name in cursive by using the cursive letter templates in the 'Misc' folder. This may take some getting used to if they are not familiar with Masterpiece!
4. Once they are ready, they can write their full name onto the actual nametag cutout with markers or crayons - whether or not they should continue using the letter templates is up to you.
5. When they are done, tell them to click the tiny check button in the lower right of the screen and then the green button. Watch their reaction as they watch a time-lapse video of them practicing cursive!
6. You can then send each child's video to yourself or their parents by clicking 'Share' or just save it to the iPad camera roll.

4th / 5th / 6th Grade Curriculum

From photosynthesis to phonics, Osmo supplementary lesson plans are Common Core-friendly and will cover various subjects for all age levels so that you can easily integrate Osmo into your curriculum.

STEM

Add Animal Adaptations (K / 1st / 2nd / 3rd / 4th / 5th)	47
Change of Season or Time of Day (2nd / 3rd / 4th / 5th)	48
Engineering Solutions (4th / 5th / 6th)	49
Grandfather Tang's Story (4th / 5th / 6th)	50
Sort Objects for Recycling (K / 1st / 2nd / 3rd / 4th / 5th)	51

Vocabulary

Mastering Vocab that Starts with "A" (4th)	52
Mastering Vocab that Starts with "A" (5th)	53

Geography

Identifying Biomes (4th / 5th / 6th)	54
I Know My State (4th / 5th / 6th)	55
Rocks & Minerals (4th / 5th / 6th)	56
States and Capitals (4th / 5th / 6th)	57

Music

Gallery of Composers (4th / 5th / 6th)	58
Music Symbols and Notes (4th / 5th / 6th)	59
Music Instruments (4th / 5th / 6th)	60



STEM

Add Animal Adaptations

By Jennifer A., Montclaire Elementary School

Grades

K to 5th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, iPad 2 or higher, variety of objects, writing utensils in different colours

Objective

Students are able to identify adaptations on a given animal that provide it protection or allows it to survive in a particular habitat, and they add adaptions (that exist on other animals) to afford it additional protection.

Australian Standards

- ACSSU073
- ACSIS071
- ACSSU043
- ACSIS093
- ACSSU094
- ACSIS110

NSW Education Standards

- ST3-4LW-S
- EN2-1A

Activity

1. Individual students or small groups choose an animal photo from the Masterpiece gallery, use an animal photo of their choice from the camera roll, or take a photo of an animal.
2. Students use the Masterpiece app to draw the animal.
3. Students label existing adaptations of the animal that provide protection. For example, on a skunk they might note the spray. Students can also note adaptations that allow the animal to survive in its habitat. For example, on a whale they might note the blubber.
4. In a different colour students add adaptations not present on the animal but found on other animals. The teacher can differentiate the number of additional adaptations that should be added (4 is suggested so the picture is not too confusing). These adaptations should be labeled as well.
5. Bonus Students can explain how the additional adaptations they chose would benefit the animal.
6. Modification First grade students could add adaptations to outlines of humans to protect them from different life situations such as snowstorms or riding a skateboard.



STEM

Change of Seasons or Time of Day

By Jennifer A., Montclaire Elementary School

Grades

2nd to 5th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, iPad 2 or higher, writing utensil(s)

Objective

Students will take a photo outside showing a particular season or time of day. They will trace the scene using Masterpiece but will change items as necessary to show the scene in a different season or at a different time of day.

Australian Standards

- ACSSU072
- ACSSU094
- ACSSU043
- ACSSU073

NSW Education Standards

- ST2-10ES-S
- EN2-1A

Activity

1. Have each student or group of students take a photo outside using the Masterpiece app. The photo should show items that reflect a particular time of day, such as shadows, or a particular season, such as new buds on a tree.
2. The student or group of students will trace their scene. However, they should alter the scene to show a different time of day, such as different shadows or the absence of shadows, or a different season, such as showing fall leaves on the tree.
3. The student or group of students colour the picture to reflect the new season.
4. Bonus Students write about the change(s) they made in their drawing and why.



STEM

Engineering Solutions

By Osmo

Grades

4th to 6th

Environment

Small groups (Maximum 3 students per iPad)

Materials

Osmo base, Newton for Osmo app, iPad 2 or higher, variety of objects from the classroom

Objective

Students will discuss properties of Newton and work collaboratively to solve engineering puzzles.

Australian Standards

- ACSIS053
- ACSIS054
- ACSIS060
- ACSSU076
- ACSHE061
- ACSIS069

NSW Education Standards

- ST2-9PW-ST
- EN2-1A
- MA3-2WM

Activity

Part 1

1. Demonstrate Newton for Osmo. Students will gather around 1 Osmo and iPad station, or you can use a projector to demo the game.
2. Set up multiple stations of Newton and form groups of students.
3. Groups will be instructed to choose objects from around the classroom for their classmates to try and solve Newton puzzles. Ideas: maths tangibles like base 10 blocks; paper and scissors to make cut-out shapes; tangram pieces.
4. Using a piece of paper, students will write down why they chose the items they chose, and rate the difficulty of using this object on a scale of 1-5. (Will set this aside for later.)

Part 2

1. Students rotate through each station, playing the game using tangible objects that were chosen by classmates.
2. After each station, the students also rate the difficulty on a scale of 1- 5.
3. Once rotations are complete, have a class discussion about why they chose the objects they did and the perceived difficulty level.
4. Bonus Students can brainstorm possible objects to use for a subsequent lesson.



STEM

"Grandfather Tang's Story" by Ann Tompert (advanced)

By Osmo

Grades

4th to 6th

Environment

Individual stations, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Tangram app, Tangram tiles, iPad 2 or higher, "Grandfather Tang's Story" by Ann Tompert

Objective

Grandfather Tang's Story and Osmo Tangram make teaching geometry both easy and creative. By the end of the lesson plan, your students will be familiar with basic geometry and how shapes can turn into bigger things!

Australian Standards

- ACMMG087
- ACMMG088

NSW Education Standards

- EN2-1A
- MA2-2WM
- MA3-2WM

Activity

1. Read aloud "Grandfather Tang's Story" and explain to students that a tangram is an ancient Chinese puzzle.
2. Introduce the 7 tangram pieces, discussing side lengths and angles to practice Common Core Standards.
 - 2 large triangles - red and blue
 - 1 medium triangle - green
 - 2 small triangles - purple and teal
 - 1 square - yellow
 - 1 parallelogram - orange
3. Let them know that just like Grandfather Tang did in the book, they will also be creating various animals, shapes, objects, and humans with tangram.
4. Start the Tangram app and go to 'Tangram'
5. Have them start on 'Medium' and solve a few puzzles. However, when the red bubbles start to appear, instruct them to start solving the red puzzles unless they find them too difficult.
6. By the end of class, the majority of students should have solved at least 5-8 red puzzles and 1 castle puzzle! You can have them go back to the game anytime to continue their progress.



STEM

Sort Objects for Recycling

By Jennifer A., Montclaire Elementary School

Grades

K to 5th

Environment

Individual station / groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, iPad version 2 or higher, various objects, writing utensils of different colours

Objective

Students will show that they can classify items into trash/landfill, glass, paper, plastic, metal, and compost (or a differentiated/abbreviated set of categories determined by the teacher).

Australian Standards

- ACSHE062

NSW Education Standards

- EN2-1A
- GE2-3
- GE3-3

Activity

Part 1 - Before the Lesson

1. The teacher gathers a variety of items that can be recycled or are trash. Depending on the ability of your students you could also include items for composting. Boxes, plastic silverware, aluminium foil, glass and plastic bottles, banana peels, newspaper, xerox paper that has been used on both sides, cans, and pencil stubs are some examples of what you might include.
2. Set out the items, differentiating the number of items based on your students. You could also let students choose their own items.

Part 2 - Review Recycling

1. Individual students or small groups take a picture of the arranged items.
2. Students use the Masterpiece app to draw the items.
3. Students then use different colours to circle each item depending on how it should be sorted for recycling. For example, glass items might be circled in blue, paper in green and plastic in red.
4. Students should include a key explaining what sorted group each colour represents.
5. Bonus Teacher determines which categories to include and how many items students should sort.



Vocabulary

Mastering Vocabulary that Starts with "A" (4th)

By Osmo

Grades

4th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students will practice 4th grade spelling and vocabulary.

Terms

accurate	appropriate
address	arrest
afford	ascend
alert	assist
analyze	attempt
ancestor	attentive
apparent	awkward

Difficulty Levels

Easy: Definition

Medium: Fill in the blank

Hard: None

Very hard: None

Australian Standards

- ACELA1779
- ACELA1828

NSW Education Standards

- EN2-1A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1f3dbldu3uo>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After introducing/reviewing vocab words

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only '4th grade vocab'
3. Hit 'Play'
4. First, students will have to identify the vocabulary word based on its definition on 'Easy.' If they are already familiar with the words, have them play on Versus mode. If not, they can play a more friendly and collaborative round on Zen mode.
5. Next, have them play on 'Medium' and guess the words based on sentence context.
6. This activity is great for review, practice, and extra help!



Vocabulary

Mastering Vocabulary that Starts with "A" (5th)

By Osmo

Grades

5th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students will practice 5th grade spelling and vocabulary.

Terms

abolish	altitude
absurd	antagonist
abuse	antonym
access	anxious
accomplish	approximate
achievement	aroma
aggressive	assume
alternate	astound

Difficulty Levels

Easy: Definition

Medium: Fill in the blank

Hard: None

Very hard: None

Australian Standards

- ACELA1779
- ACELA1513
- ACELA1828
- ACELA1829

NSW Education Standards

- EN2-1A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1plf5rp8b9c>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After introducing/reviewing vocab words

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only '5th grade vocab'
3. Hit 'Play'
4. First, students will have to identify the vocabulary word based on its definition on 'Easy.' If they are already familiar with the words, have them play on Versus mode. If not, they can play a more friendly and collaborative round on Zen mode.
5. Next, have them play on 'Medium' and guess the words based on sentence context.
6. This activity is great for review, practice, and extra help!



Geography

Identifying Biomes

By Osmo

Grades

4th to 6th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles , iPad 2 or higher

Objective

Students will learn to identify and discern key geographical features of each biome, and work on spelling

Terms

desert	savannah
taiga	chaparral
tundra	grassland
temperate	rainforest

Difficulty Levels

For this lesson, the difficulty levels are not that different from each other.

Australian Standards

- ACSSU073
- ACSSU072
- ACSSU094
- ACSSU043
- ACELA1779
- ACELA1828
- ACELA1513
- ACELA1829

NSW Education Standards

- EN2-1A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1jy0sh4nnr4>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After teaching about biomes

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Biomes'
3. Hit 'Play'
4. Have students compete or work together to figure out the term and its spelling. Some might need to have additional material to refer back to for definitions and descriptions.
5. When students are stuck, encourage them to use process of elimination from a glossary or vocabulary list.
6. After everyone is finished, go over one round of the game together to answer questions and highlight each biome's unique traits.



Geography

I Know My State

By Rita M., Verona Area High School

Grades

4th to 6th

Environment

Individual or station: *Max 1 student per iPad at a time

Materials

Osmo base, Osmo Masterpiece app, iPad, crayons, colored pencils, scissors

Objective

Students master facts on states and then educate fellow classmates.

Variation

Students can do all of their notetaking and drawings inside the outline of their state. Next, students can cut out the state and piece them all together on the classroom wall. This will reinforce the knowledge of their geographical region.

NSW Education Standards

- EN2-1A

Activity

1. Students will each be assigned one of the 50 states of the United States (or they will pick one out of a jar). Once they pick their state, they will find a picture of it (or the teacher can have the photo preloaded).
2. The student will draw the state using Masterpiece. When finished, the student will identify the state, the capital, and 5 unique facts about that state. The student will draw / colour all essential elements of this project including the graphics and wording for the facts.
3. The entire project will then be displayed alphabetically or by region on the classroom wall for all of the students to use.

Facts to consider

- Capital city
- Sports team
- Major industry or crops
- State bird, flower, flag
- Famous people associated with that state
- Other fact about the state



Geography

Rocks and Minerals

By Osmo

Grades

4th to 6th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Spelling Words

coal	metamorphic	lava
conglomerate	sedimentary	granite
crystal	marble	basalt
geologist	pumice	mantle
limestone	sandstone	crust
magma	shale	inner core
igneous	volcano	outer core

Difficulty Levels

Easy: More common/familiar terms

Medium: Less familiar terms, some w/ letters shown

Hard: Entire word for most challenging terms

Australian Standards

- ACELA1779
- ACELA1828
- ACELA1513
- ACELA1829

NSW Education Standards

- EN2-1A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1kgaesk5rsw>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.
*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After teaching about rocks and minerals

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Rocks & Minerals'
3. Hit 'Play'
4. Have students compete or work together to figure out the term and its spelling. Some might need to have additional material to refer back to for definitions and descriptions.
5. When students are stuck, encourage them to use process of elimination from a glossary or vocabulary list.
6. After everyone is finished, go over one round of the game together to answer questions.



Geography

States and Capitals

By Osmo

Grades

4th to 6th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

This activity is both an engaging and fun way for your students to memorize all 50 states and capitals!

Difficulty Levels

Easy: First letter shown (states)

Medium: Entire word (states)

Hard: First letter shown (capitals)

NSW Education Standards

- EN2-1A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
 2. Create an account
 3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1p8yof3ztog>
 4. Click 'Download to iPad'
 5. Congrats! Now you have the album available in your Osmo Words Library.
- *If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After teaching about states and capitals

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'States and Capitals'
3. Hit 'Play'
4. Start the lesson by having your students play on 'Easy.' If they are new to states, have them play a second round on 'Easy.' Once they are familiarized, have them play 'Medium,' which has no hints!
5. Play 'Hard' and 'Very hard' if you want to challenge your students' knowledge on state capitals!
6. Give your students printable maps or states/capitals index lists when the pace is slow.



Music

Gallery of Composers

By Cathy H., Watertown Unified School District

Grades

4th to 6th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, drawing utensils, iPad 2 or higher

Objective

Students will explore the life of a composer and draw a picture of that composer using Osmo Masterpiece. They will be able to communicate facts about the composer by writing a short bio of him. In the end, print the pictures they have drawn and place them on a wall to form a gallery of composers.

Australian Standards

- ACAVAM111

NSW Education Standards

- EN2-5A
- VAS3.2

Activity

1. Students are given a composer to research either in a small group or individually. They must come up with simple facts about the composer such as birthplace, brief life story, compositions, and instruments played.
2. Then, they will write a short essay on the composer.
3. Next, the students will use Osmo Masterpiece to draw a picture of the composer. Photos of the composer should be pre-downloaded onto the iPad camera roll or have the students find a photo on their own online. Make sure the photo of the composer is a copyright-free to use.
4. Pictures of the composers should be printed and matted.
5. Place pictures on the wall or hallway to form a gallery so others can learn too!



Music

Music Symbols and Notes

By Osmo

Grades

4th to 6th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Go over every note and symbol with the help of Osmo Words! This activity will help your students better recognize core music concepts visually.

Terms

treble clef	repeat
staff	whole note
bass clef	half note
forte	quarter note
piano	flat
crescendo	sharp
decrescendo	time signature
bar line	key signature
double bar line	fermata
natural	eighth note

Australian Standards

- ACELA1779
- ACELA1513
- ACELA1828
- ACELA1829

NSW Education Standards

- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1q60lhn4ohs>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 -After reviewing each musical concept with your students

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Music terms and symbols'
3. Hit 'Play'
4. Difficulty is based on the complexity and familiarity of the note/symbol.



Music

Musical Instruments

By Osmo

Grades

4th to 6th

Environment

Individual station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students will be challenged not only to identify instruments, but to also spell them. Have them name each instrument to win points or work with each other!

Terms

flute	bass drum
clarinet	timpani
oboe	marimba
bassoon	chimes
alto saxophone	piano
tenor saxophone	crash cymbals
trumpet	gong
trombone	violin
euphonium	viola
tuba	french horn

Australian Standards

- ACELA1779
- ACELA1513
- ACELA1828
- ACELA1829

NSW Education Standards

- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
 2. Create an account
 3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1kt8h9lw9a8>
 4. Click 'Download to iPad'
 5. Congrats! Now you have the album available in your Osmo Words Library.
- *If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reviewing each musical concept with your students

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Musical instruments'
3. Hit 'Play'
4. Difficulty is based on the complexity and familiarity of the instrument.

All Ages Curriculum

These Osmo lesson plans are perfect for extracurricular activities and creative ideas outside of traditional curriculum. Explore different interests with your classroom by delving into an hour of self-portrait fun or learning how to write Chinese!

First Day of School

About Our Class	62
Getting to Know Our Classroom	63
Lilly's Purple Plastic Purse	64

Art

Draw a Self-Portrait	65
Gallery of Composers	66

Languages

Draw Chinese Characters with Masterpiece	67
--	----

Cooking

How Do You Spell Tomato?	68
Cooking Styles	69



First Day of School

About Our Class

By Jennifer A., Montclaire Elementary School

Grades

K to 6th

Environment

Students are split into two groups with least 6 students per iPad

Materials

Osmo base, Words for Osmo app, at least 2 iPads

Objective

Help students get to know each other and become acquainted with a new classroom or school. Students practice spelling / sounding out words they hear collaboratively.

Variation

Project the game using Apple TV and have students play as one group, alternating turns for letters. For younger students, teachers create the album.

Australian Standards

- ACTDEP007
- ACELA1817
- ACELA1821

Activity

Part 1

1. Divide students in two groups, one iPad for each group. The groups should be larger than normal so more students interact and learn about each other.
2. Each group starts off by taking photos of each other with the iPads (with the teacher's help).
3. Students login to my.playosmo.com/words/browse/myalbums to create a new album. Click 'Create New Album.' Then, upload the self photos to Words game and input the spelling of their names.
4. Extra Bonus Students can upload a photo of their favorite animal or a place they've visited. This process gets students talking and learning the preferences of each other.

Part 2

1. Set up multiple stations and form groups of students. In each Words app, click on "Download to iPad" to start playing your own album.
2. Students then work together to figure out and spell the keyword.
3. Groups rotate to another iPad (or share the albums) after 10-15 minutes.



First Day of School

Getting to Know Our Classroom

By Osmo

Grades

K to 6th

Environment

Groups of 2 - 3

Materials

Osmo base, Osmo Words app, Letter tiles, iPad2 or higher, paper, writing utensil(s)

Objective

At the beginning of the year, students will review classroom rules and procedures.

Australian Standards

- ACTDEP007
- ACTDEP016
- ACELA1817
- ACELA1821

NSW Education Standards

- ENe-1A
- EN1-1A
- EN2-1A

Activity

Part 1 - Before the lesson

1. Go to my.playosmo.com/words for creating a new album
2. Click 'Create your own'
3. Upload a picture for each classroom rule or procedure
4. Once the picture is uploaded, click on it and input the word choice (ex. pencils or bathroom)
5. Click 'Download' to install to the iPad
6. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only the classroom rule album you created and downloaded.
3. Hit 'Play'
4. Have students start on Zen mode in easy level. This encourages teamwork in a learning environment. After one round, have them play medium level on Zen mode.
5. If there is time, challenge them to play on Versus mode.
6. Bonus For each photo, have the students discuss and write a complete sentence explaining the corresponding rule.



First Day of School

"Lilly's Purple Plastic Purse" by Kevin Henkes

By Osmo

Grades

2nd / 3rd

Environment

Individual station, groups of 2-3, or whole class using projector

Materials

Osmo base, Osmo Words app, Letter tiles, iPad 2 or higher, "Lilly's Purple Plastic Purse" by Kevin Henkes.

Objective

Using framework of Common Core, students will learn new concepts from classic children's books.

Difficulty Levels

Easy: Easy to guess

Medium: Less obvious

Hard: Entire word for less obvious words, compound words

Very hard: None

Australian Standards

- ACELA1821
- ACELA1485

NSW Education Standards

- ENe-1A
- ENe-4A
- EN1-1A
- EN1-4A

Activity

Part 1 - Before the lesson

1. Go to my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1ksbwbjczy8>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2 - After reading "Lilly's Purple Plastic Purse" aloud

1. Ask students how they felt on their first day of school. Connect with them about Lilly's behavior before and after.
2. Open the Osmo Words app and click on 'Library'
3. Deselect all other albums and select only 'Lilly's Purple Plastic Purse'
4. Hit 'Play'
5. Students guess and match the correct letters for keywords in the book. Encourage them to use their letter tiles wisely by using common vowels and consonants first.
6. Some photos may be hard to guess - be ready to give hints!



Art

Draw a Self-Portrait

By Osmo

Grades

3rd to 6th

Environment

Individual or station: *Max 1 student per iPad at a time

Materials

Osmo base, Masterpiece for Osmo app, iPad, paper, drawing utensils

Objective

Students draw portraits of themselves using a photograph as a guide.

Australian Standards

- ACTDEP016

NSW Education Standards

- VAES1.1
- VAS1.1

Activity

1. In this workshop, students will get to experience the process of taking a selfie and sketching out their self-portrait.
2. Each student gets their own iPad.
3. Assisted by a teacher or classmate, students will start by taking a selfie with the iPad, making sure it saves to camera roll.
4. Teacher will demonstrate the process of choosing an image to draw from the camera roll and changing the visible lines. (Students will gather around 1 Osmo and iPad station, or you can use a projector for the demo.)
5. Students go back to stations to begin tracing their photo and drawing a self-portrait.



Art

Gallery of Composers

By Cathy H., Watertown Unified School District

Grades

4th to 6th

Environment

Individual stations, groups of 2-3

Materials

Osmo base, Osmo Masterpiece app, drawing utensils, iPad 2 or higher

Objective

Students will explore the life of a composer and draw a picture of that composer using Osmo Masterpiece. They will be able to communicate facts about the composer by writing a short bio of him. In the end, print the pictures they have drawn and place them on a wall to form a gallery of composers.

Australian Standards

- ACAVAM111

NSW Education Standards

- ENe-1A
- EN2-5A
- VAS3.2

Activity

1. Students are given a composer to research either in a small group or individually. They must come up with simple facts about the composer such as birthplace, brief life story, compositions, and instruments played.
2. Then, they will write a short essay on the composer.
3. Next, the students will use Osmo Masterpiece to draw a picture of the composer. Photos of the composer should be pre-downloaded onto the iPad camera roll or have the students find a photo on their own online. Make sure the photo of the composer is a copyright-free to use.
4. Pictures of the composers should be printed and matted.
5. Place pictures on the wall or hallway to form a gallery so others can learn too!



Languages

Draw Chinese Characters with Masterpiece

By Osmo

Grades

K to 6th

Environment

Small group (maximum 2 students per iPad.)

Materials

Osmo base, Masterpiece for Osmo app, iPad, paper, drawing utensils

Optional: Any Chinese language textbook.

Objective

This activity is appropriate for art or language class, or as an activity station. Students will learn to write different language characters for the first time or skilled students can deepen their practice and create compositions.

Australian Standards

- *ACLCHU011*
- *ACLCHU027*

NSW Education Standards

- *LCHe-4C*
- *LCH1-4C*
- *LCH2-4C*
- *LCH3-4C*

Activity

Students will use Masterpiece for Osmo to make Chinese language characters.

Part 1 - Before the Lesson

1. Search the web for “Chinese character practice sheets generator” or take a photo of a practice sheet using your textbook.
2. Once you’ve found the practice sheet(s) you’d like to use for the lesson, send the image to each iPad’s camera roll.

Part 2 - With Students

1. Demonstrate Masterpiece for Osmo. Students will gather around 1 Osmo and iPad station, or you can use a projector for the demo.
2. Students are instructed to open Masterpiece, go to the Camera Roll and select the practice sheet.
3. Instruct students to grab a pen and paper and begin tracing the strokes on Masterpiece.
4. Bonus If you need help remembering what a set of characters means, after you’ve finished practicing it, you can draw a picture that represents the meaning to you.



Cooking

How Do You Spell Tomato?

By Osmo

Grades

K to 6th

Environment

Individual or station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

Students identify and spell different fruits and vegetables.

Spelling Words

pineapple	strawberry	mango
mushroom	kiwi	banana
cherry	watermelon	broccoli
corn	pear	lettuce
onion	tomato	apple

Difficulty Levels

Easy: 1-3 consonants for common fruits and vegetables

Medium: 50-75% of the word for all fruits and vegetables

Hard: Entire word

Very Hard: Entire word in plural form

Australian Standards

- ACELA1474
- ACELA1485
- ACELY1789
- ACELA1826

NSW Education Standards

- EN1-1A
- EN2-1A
- EN1-5A
- EN2-5A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1jq24rqaoe8>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Fruits & Veggies'
3. Hit 'Play'
4. Have students start on whatever level you find best fits their spelling skills on Zen mode.
5. After one round, have them play the next level on Versus mode. Remind them that some fruits and vegetables have short and long names, such as 'peas' and 'green peas.'
6. Challenge them to play 'Very Hard' if they finish early or during break time.



Cooking

Cooking Styles

By Osmo

Grades

K to 6th

Environment

Individual or station, groups of 2-3

Materials

Osmo base, Osmo Words app,
Letter tiles, iPad 2 or higher

Objective

There are so many ways to cook food. Challenge your students' culinary knowledge with this unique lesson!

Spelling Words

braise	coddle	simmer
boil	roast	dum pukht
saut��	pickle	flambe
blanch	hangi	smoke
stew	gill	deep fry
stir fry	bake	engine cook

Difficulty Levels

All words are on medium level

Australian Standards

- ACELA1474
- ACELY1789
- ACELA1485
- ACELA1826

NSW Education Standards

- ENe-4A
- EN1-4A

Activity

Part 1 - Before the Lesson

1. Go to www.my.playosmo.com/words on the iPad
2. Create an account
3. Enter link in the URL bar:
<https://my.playosmo.com/words/public/album/1jtfrq583cw>
4. Click 'Download to iPad'
5. Congrats! Now you have the album available in your Osmo Words Library.

*If you are using multiple iPads, go to my.playosmo.com/words on each iPad, log in, and download the album.

Part 2

1. Open the Osmo Words app and click on 'Library'
2. Deselect all other albums and select only 'Cooking Styles'
3. Hit 'Play'

All Ages Coding Curriculum

Coding Awbie

Back to the Drawing Board (K / 1st / 2nd)	71
Catch the Critter! (K / 1st / 2nd)	73
Changing Colours (K / 1st / 2nd)	75
Collecting Strawberries (K / 1st / 2nd)	77
Crossing the River (K / 1st / 2nd)	79
Get the Pie! (K / 1st / 2nd)	81
Go Time (K / 1st / 2nd)	83
If Not This, Then What? (K / 1st / 2nd)	85
Break It Down (3rd / 4th / 5th)	87
If Awbie Can, Then He Will (3rd / 4th / 5th)	89
How Many Times (3rd / 4th / 5th)	91
Coding Awbie Cut-Out Blocks	93

Coding Jam

All Together Now (K / 1st / 2nd)	94
The Kitchen Monkey Song (K / 1st / 2nd)	96
Long Song (K / 1st / 2nd)	98
Musical Program (K / 1st / 2nd)	100
Purposeful Pause (K / 1st / 2nd)	102
Same Sounds (K / 1st / 2nd)	104
The Musicians' Code (3rd / 4th / 5th)	106
What's Next? (3rd / 4th / 5th)	108
Coding Jam Cut-Out Blocks	110

Coding Duo

Squish the Bugs! (3rd / 4th / 5th)	111
Waiting Game (3rd / 4th / 5th)	113
Working Together (3rd / 4th / 5th)	115
Plan for Stan (3rd / 4th / 5th)	117
Taking Turns (3rd / 4th / 5th)	119
Saving Blocks (3rd / 4th / 5th)	121
Coding Duo Cut-out Blocks	123

Journal Notes

Coding Awbie Journal Notes	126
Coding Jam Journal Notes	148
Coding Duo Journal Notes	164

Note: To use all of the coding lessons, Coding Family is needed.



STEM

Back to the Drawing Board

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Awbie app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

pseudocoding

Activity

1. With the class, write out the steps to a simple recipe, such as for making a salad or cooking an egg. Explain to the students that there are lots of different types of instructions. Share that the instructions help people create a plan.
2. Explain to the students that sometimes computer programmers draw or write down what they want their code to do before they create their program. This helps them figure out what steps they will need to accomplish their goal. Tell the students that this is known as **pseudocoding**.
3. Remind students that the more strawberries Awbie collects in a single push of the Play button, the more points the strawberries are worth. Have the students consider their goal for Awbie. What do they want him to do? What are the steps Awbie must go through to accomplish the goal? Have students write down or draw their goal in question 1 of the Journal Notes.
4. Have the students write down or draw their plan in question 2 of the Journal Notes.
5. Next, have the students determine what Coding blocks will be necessary to complete this plan. Have students record this in question 3 of their Journal Notes (students can use the cut-outs on page 3 to help them answer this question in the Journal Notes).
6. Finally, have the students activate their plan by pressing the play button on the Play block.
7. Discuss the benefits of having a plan before creating the code.



STEM

Back to the Drawing Board (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

Teacher Note

Map 1-7

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Students will be able to answer questions 1 through 3 in the Journal Notes.
- In place of question 4, students can draw instructions for going outside in the rain.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 126.



STEM

Catch the Critter!

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Awbie* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

strategy
random

Activity

1. Explain to students that **strategies** are used every day to ensure that goals are met. Strategies can be simple or complex. A strategy is a plan. To prompt discussion, ask students what their strategy is for eating at school. Then have students tell what their strategy is for playing a board game, such as checkers.
2. Ask students what happens when there is no strategy or plan in place. Explain to the students that when there is no strategy, these outcomes can be called **random**. Explain that since these events have no plan, the outcomes are usually unpredictable, or cannot be guessed.
3. Have the students help Awbie catch the critter by strategizing how to reach the critter using only a single code (i.e., by pressing the Play button only once). Once they have selected a strategy, they should choose their blocks and use the Play block to execute their code. Students may want to act out their strategies before executing their codes.
4. Once the students have caught the critter, ask them to try the level again but this time use randomly selected blocks to reach the critter.
5. Have students discuss what happens when the same blocks are played in a different order.



STEM

Catch the Critter! (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

Teacher Note

Map 1-3

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Divide the classroom up into two groups. First hold up three large print-outs of the Coding blocks and have one group of students act out the three actions that they show. Then rearrange the same cut-outs, and have the other group of students act out the three actions shown.
- Students can then use the cut-outs to answer questions 1 and 3, and draw their answers for questions 2 and 4.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 128.



STEM

Changing Colours

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Awbie app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to ask questions, use observations to test a claim, and plan and investigate a claim.

Vocabulary | Concepts

data conversion
convert

Activity

1. Ask the student what happens to ice on a hot day. Discuss with the students how ice melts and becomes liquid water. Explain to the students that when ice melts into water, it has changed (or **converted**) its form.
2. Explain that in computer programming **data conversion** is when something is changed into a different form.
3. Explain to the students that the Magic block works the same way. When the Magic block is used, Awbie and all of the strawberries on the screen change their colours. Share with the students that Awbie can only use the Magic block when his Star Meter is full.
4. Have the students collect enough stars to fill Awbie's Star Meter.
5. Have the students use the Magic block to convert the colour of the red strawberries to a different colour. Students should record the new colour in question 2 of the Journal Notes.
6. Have the students collect the strawberries with the new colour. Students should record how many points the new strawberries are worth in question 3 of the Journal Notes.
7. Discuss with the students the benefits of being able to convert the strawberries.



STEM

Changing Colours (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

Teacher Note

Map 1-7

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Students can answer questions 1, 2, and 3.
- Help the students write “more” for question 4.

Grade 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 130.



STEM

Collecting Strawberries

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Awbie* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to understand relationship between numbers and quantities.

Vocabulary | Concepts

code
command
input
output

Activity

1. Explain that some words are made of parts that can tell us their meaning. Write the word “input” on the board and circle “in” and “put.” Ask the students to tell what each word means. (Model walking “in” to class for students if they need extra help defining word.) Brainstorm with students what input might mean. Then explain that input is the information we put into the computer that tells the computer what we want it to do, and that this information makes up what we call computer **codes**.
2. Show the students the different input Coding blocks, including the Play block. Explain that the Play block lets the computer know that the input **commands** are ready.
3. Remind students that **input** is the information we put into the computer. Point to the two words “in” and “put.” Ask what we would call information that comes out of the computer. Guide students to understand that **output** is what the computer does in response to the input.
4. Have each student or group practice using input commands to determine what will be output. Students will select an input Coding block to use, place the block and the Play block in front of Awbie, then press the Play block’s button and see what happens!
5. Students can turn the arrow on each Coding block and notice how this changes what Awbie does.
6. Students can then place a number next to each Coding block and see how this changes what Awbie does.
7. Students will then move Awbie around the strawberry patch and collect all of the strawberries using their Coding blocks.



STEM

Collecting Strawberries (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

8. Have students discuss what happened when they changed the input blocks.

Teacher Note

Map 1-7

Grade K:

- Hold up the large print-outs of the Coding blocks and have the students act out the actions that they show. Students should also act out input and output by acting out "in" and "out."
- Help the students practice their writing skills by helping them write the words "grab," "walk," "jump," "in" and "out" for questions 1-3.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 132.



STEM

Crossing the River

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Awbie* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to describe objects in the environment.

Vocabulary | Concepts

sequence

Activity

1. Ask students to give examples of how **sequence**, or order of events, is important to their lives. (Examples might include putting on socks and then shoes, opening a door before walking through it, or arriving at school after leaving their home.)
2. Explain to the students that sequence is important for computer programming too. If the students want Awbie to pick a strawberry from a bush, Awbie must first walk over to the bush. If students want Awbie to go around a tree, they must decide if he should move to the side before or after he steps forward.
3. Have the students help Awbie cross the river by choosing the sequence of steps he will need to take. Once they have selected the sequence, they should use the Play block to execute their code and get Awbie to cross the river.
4. Next, ask the students to try using the same blocks but change the order the blocks are placed in. They should use the Play block to execute their code.
5. Have students notice what happens when the same blocks are played in a different order.



STEM

Crossing the River (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

Teacher Note:

Map 3-3

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Divide the classroom up into two groups. First hold up three large print-outs of the Coding blocks and have one group of students act out the three actions that they show. Then rearrange the same print-outs and have the other group of students act out the three actions shown.
- Students can use cut-outs to help them answer questions 1 and 3, and draw their answers for 2 and 4.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 134.



STEM

Get the Pie!

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Awbie app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to describe objects in an environment. Students will be able to analyze data.

Vocabulary | Concepts

bug
debug

Activity

1. Ask the students if they have ever had something go wrong when they were doing a task. How did they fix it? Explain to the students that sometimes when people create a program, something goes wrong. Part of being a good coder is finding where the error is and correcting it. Explain to the students that an error in a program is called a **bug**. To **debug** the program, you find the error and fix it.
2. Provide the students with the code (Jump up, Jump up with Quantifier 2, Jump left) to help Awbie cross the river to get the pie. Have the students execute the code, and see what happens!
3. Have students discuss what went wrong in the code. What was the first thing Awbie did that he wasn't supposed to do? Have students discuss the error.
4. Have the students determine which one Coding block they need to replace to fix the first thing Awbie did wrong. Then have the students decide which one block it should be replaced with. Have the students execute the code again, and see what happens.
5. Have the students continue to debug the program until Awbie gets the pie!
6. With the class, discuss how to debug a program. List the steps in the process. Then have the students tell why debugging a program is important.
7. Bonus Once the program is debugged, have the students try to decrease the number of Coding blocks needed by using Quantifier blocks and Repeat blocks.



STEM

Get the Pie! (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

Teacher Note:

Map 1-2

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grades K, 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 136.



STEM

Go Time

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Awbie app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to describe objects in an environment.

Vocabulary | Concepts

event
execute

Activity

1. Have the students play a short game of “Red Light/Green Light” in the classroom. After the game, ask the students how they knew when they should start to walk.
2. Discuss with the students how the words “green light” let them know that it is time to walk. According to the rules of the game, walking should only happen after they are told “green light.”
3. Explain to the students that computer programs work the same way. The program only plays after it is told to play. The term programmers use for this is “execute”; when the computer is told to **execute** the code, that is when the program plays.
4. The **event** is the thing that the user does that causes the code to be executed. Clicking a mouse, pushing a button, or scrolling on a touchscreen are all events.
5. Ask the students if there is a Coding block that requires the user (player) to perform an action to make the code run. Discuss with the students how the Play block’s button is the event that executes the code (i.e., tells the code to run).
6. Have the students observe an event: By dragging their finger across the screen, the game will scroll to show what obstacles Awbie faces in the next part of the map. Encourage students to note how the program knows to execute the code (move the screen) when the user activates it (they drag their fingers across the screen).
7. Next, have the students create their code. The students will use the Coding blocks to code Awbie’s safe passage across the three bodies of water.



STEM

Go Time (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

8. Finally, have the students execute their code by pressing the Play button on the Play block. Students should notice that the code will not execute until the button is pressed.
9. Discuss the benefits of having a computer program that is activated by a person instead of running on its own.

Teacher Note:

Map 1-2

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Hold up a large print-out of a Coding block, such as the Jump block. Then, when the Play block is held up too, the students can act out the action that the block shows (such as by jumping).
- Students can answer questions 1, 2, and 4.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 138.



STEM

If Not This, Then What?

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Awbie app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to describe objects in an environment. Students will be able to analyze data.

Vocabulary | Concepts

conditional statements
if-then

Activity

1. Ask students if they ever need help to do things. For example, some students depend on the school bus driver to get them to school. Discuss with students how sometimes what you do depends on whether something else is true. If it rains outside, then recess will be in the gym. If it's a Sunday, then there is no school. Explain to the class that these are known as **if-then** statements: if one thing is true, then this thing will happen.
2. Explain to the class that there are different kinds of these statements in computer coding, and these are all called **conditional statements**. These statements tell you what will happen under the right conditions.
3. Introduce the students to the Caution block, explaining that this block can be used as an if-then conditional statement. The block lets Awbie know that when the programmed path is blocked, then he should use the other programmed path.
4. Explain to the students that the main program has the Play block at the bottom and is the first program Awbie will try to complete. Attaching the Caution block to the main program allows the user to place an alternate program under the Caution block to use if the first path becomes blocked.
5. First, have the students use a Walk block with a Quantifier block to have Awbie fall in the river. Have students execute this code and notice that Awbie falls into the river. Have the students notice at what point the program fails, then set this program (Program 1) aside.



STEM

If Not This, Then What? (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACTDIP011
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

6. Next, have the students use a Walk block with a Quantifier block plus a Jump block to have Awbie successfully cross over the river. Have students execute this code and notice how Awbie successfully crosses the river. Set this program (Program 2) aside.
7. Have the students notice which block (the Walk block) the two programs have in common. Since the Program 1 will execute until the program fails, students should remove the Walk block from Program 2, since it will not be needed.
8. Next, students should add the Caution block next to the Quantifier block in Program 1, and place Program 2 under the Caution block. Have students execute the code and notice that since in Program 1 Awbie's path is blocked, Awbie will instead use Program 2 to successfully cross the river.
9. Discuss with students how the Jump block made Awbie jump over the river instead of falling into it. Frame their answers in an if-then statement. If Awbie comes to the river, then he will have to jump over it to avoid falling in.

Teacher Note:

Map 1-2

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grades K, 1, and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 140.



STEM

Break It Down

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Awbie* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo *Coding Awbie* blocks and *Coding Awbie* app. Students will be able to ask questions, use observations to test a claim, and plan and investigate claims. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

decompose

Activity

1. On the board, write $\frac{3}{8}$ and ask the student how it can be broken down into a sum of other fractions ($\frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{3}{8}$). Explain to the students that this process is known as **decomposing**.
2. Discuss with the students how in a food web, the *decomposers* are responsible for breaking dead matter up into parts.
3. Next, ask the students based on their knowledge of “*decomposers*” in an ecosystem and “*decomposing*” fractions, what they think computer programmers call breaking a code up into pieces. Lead them to see that when programmers break a code up into pieces they *decompose* the code.
4. Ask the students to create a code to help Awbie collect all the strawberries while crossing the river, using one long code all three times. Explain to the students that instead of trying to create all of the code at once, they should decompose the problem into two parts: the first part should code for the first crossing, while the second part should code for the second and third crossing.
5. Once they have determined the code for each part, the students can program two Subroutine blocks for each part, and put the two subroutines together to create one long code. Have students execute this code. Students should record their codes in questions 1 and 2 of the Journal Notes.
6. Discuss how breaking a problem up into parts can make it easier to work on. Students should record their answers in question 3 and 4 of the Journal Notes.



STEM

Break It Down (Cont.)

Australian Standards

- ACTDIP010
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

Teacher Note:

Map 4-5

All Grades:

- Write question 3 on the board. Lead students to think-loud answers to question 3. Help students to record their answers as needed.

Grade 3

- Help students to record their answer as needed for question 4.

Grades 4 and 5:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 142.



STEM

If Awbie Can, Then He Will

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Awbie* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Awbie* app. Students will be able to ask questions, use observations to test a claim, and plan and investigate claims. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

conditional statements
if-then

Activity

1. Discuss with students how sometimes the occurrence of one thing is dependent on something else. Examples might include: if it's a Wednesday then you have soccer practice, if it is 7 o'clock then you need to feed the cat, or if it is raining outside then you play inside at lunch. Explain that in computer programming, these are known as **conditional statements**.
2. Ask students what happens when Awbie uses a Hand block in *Coding Awbie*. Lead students to understand that *if* you are playing *Coding Awbie*, *then* Awbie picks up the thing next to him.
3. Ask students what happens when Awbie uses a Hand block in *Coding Duo*. Lead students to understand that *if* you are playing *Coding Duo*, *then* Awbie makes a bouncy jelly.
4. Explain to the students that these are if-then statements, which are a type of conditional statement.
5. Introduce the students to the Caution block, explaining that this block can be used as an if-then conditional statement. The block lets Awbie know that if the first path that is programmed is blocked, then Awbie should use the second programmed path instead. The first choice path is the one with the Play block at the bottom, and the second choice path is the one placed under the Caution block.
6. First, have the students use Walk, Quantifier, and Repeat blocks to have Awbie fall in the water. Have students execute this code and notice that Awbie falls into the water. Have the students set this program (Program 1) aside.



STEM

If Awbie Can, Then He Will (Cont.)

Australian Standards

- ACTDIP010
- ACTDIP011
- ACTDIP019
- ACTDIP020
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

7. Next, have the students use Walk, Quantifier, and Repeat blocks to have Awbie successfully get to the bunny. Have students execute this code and notice how Awbie successfully gets to the bunny. Set this program (Program 2) aside.
8. Have the students notice which block (the Walk block) the two programs have in common. Since Program 1 will execute until the program fails, students should remove the Walk block from Program 2, because it is not needed.
9. Next, students should add the Caution block next to the Quantifier block in Program 1, and place Program 2 under the Caution block. Have students execute the code and notice that since in Program 1 Awbie's path is blocked, Awbie will instead use Program 2. Students should then edit the second program as needed to help Awbie complete his task.

Teacher Note:

Map 1-1

All Grades:

- Write question 1 on the board. Lead students to think-loud answers to question 1. Help students record their answers as needed.

Grade 3

- Help students use the sentence starters in questions 2 and 3 to create their answers to the question. Help students to record their answers to question 4 as needed.

Grades 4 and 5:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 144.



STEM

How Many Times?

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Awbie* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo *Coding Awbie* blocks and *Coding Awbie* app. Students will be able to create graphs from data. Students will be able to determine trends from graphs. Students will be able to ask questions, use observations to test a claim, and plan and investigate claims. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

repeat
quantifier

Activity

1. Ask the students if there is an activity that they repeat every day. Examples might include going to bed, eating breakfast, or walking the dog. Determine a definition for the word “**repeat**” based on this discussion, and write it on the board.
2. Introduce the students to the Repeat block, and explain that any blocks placed under the Repeat block will be repeated.
3. Next, explain that another way to repeat a task is to determine how many times the task should be performed. Students may be familiar with these types of instructions from cooking or playing a game (an example of this might be “do this step 2 times”). Because the number in the instruction is telling someone the quantity (or number) of times the action should be performed, this number is known as a **quantifier**.
4. Introduce the students to the Quantifier blocks and explain that they are used to tell the computer how many times to execute another block. For example, a “2” Quantifier block next to a Walk block will cause Awbie to walk two steps.
5. Explain that adding a Quantifier block to a Repeat block will make the Repeat block happen an additional number of times (e.g., a “2” next to a Repeat block will make the song play once, then repeat 2 additional times).
6. Using only the Walk, Jump, and Grab blocks available in the kit, have the students collect the most strawberries that they can. Students should record these values in questions 1 and 2 of the Journal Notes.



STEM

How Many Times? (Cont.)

Australian Standards

- ACTDIP010
- ACTDIP011
- ACTDIP019
- ACTDIP020
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

7. Next, have students do the level again, but this time they can also use the Repeat block to replace some of their blocks. Students should record these values in questions 3 and 4 of the Journal Notes.
8. Finally, have the students repeat the level a third time, but this time they can use the Repeat and the Quantifier blocks. Students should try to collect the most strawberries using the fewest blocks possible. Students should record these values in questions 5 and 6, and the layout of the code in question 7 of the Journal Notes.

Teacher Note:

Map 3-6

All Grades:

- Help students to record their answers as needed for questions 8 and 9.

Grades 4 and 5:

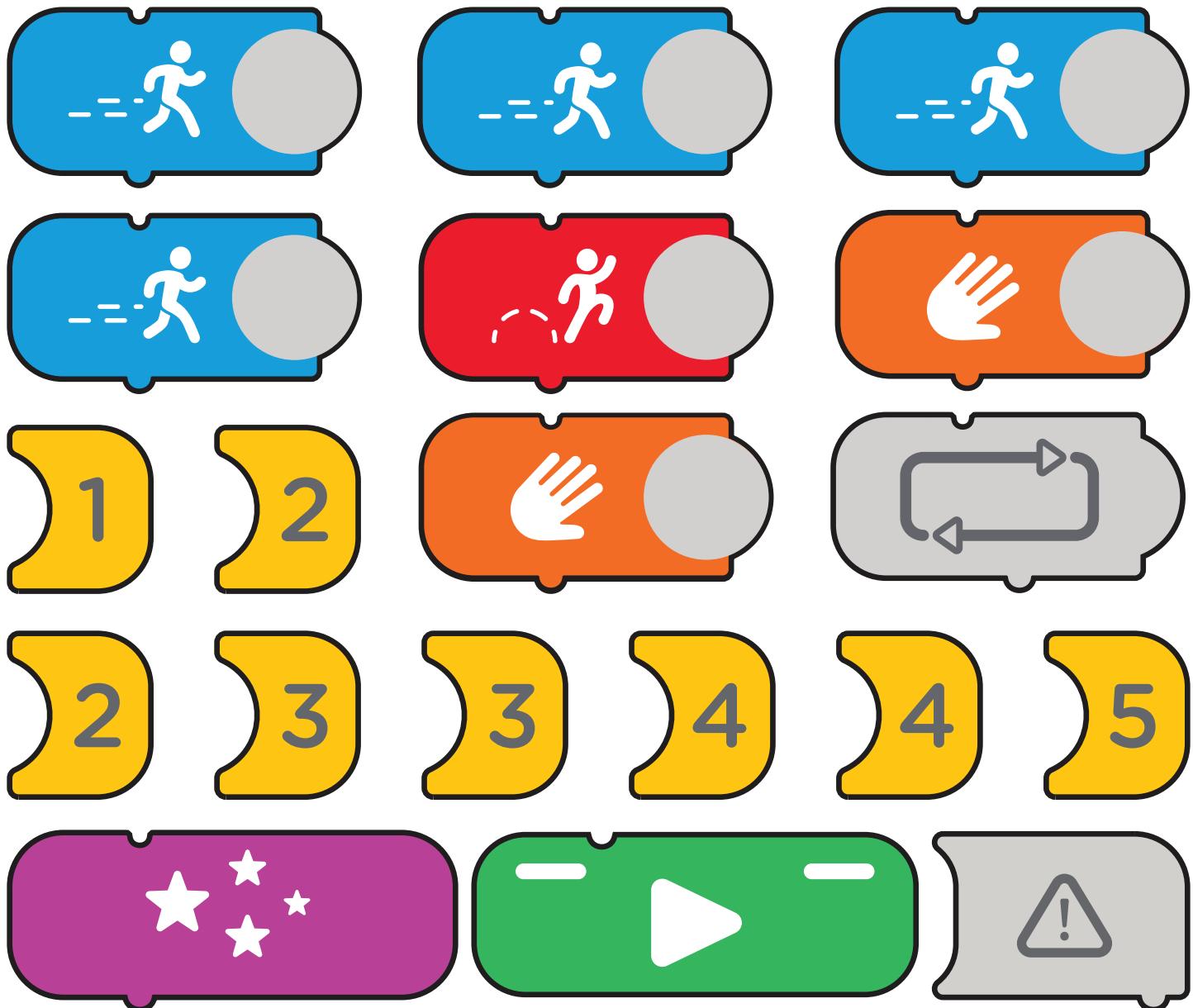
- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 146.



Coding Awbie Cut-Out Blocks

These are the blocks used in Coding Awbie. This page can be photocopied so that each child can have their own set of blocks to cut out. Children can draw the arrows on the blocks as needed to indicate the direction of the action.





STEM

All Together Now

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Jam app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Jam* app.

Students will be able to count to specific number ranges and read and write numerals.

Vocabulary | Concepts

parallel

Activity

1. Have students form a line, and have the first student in the line lead the rest of the line through a classroom door until all of the students have passed through the doorway. Ask the students how they could pass through the door more quickly without walking any faster. Encourage the students to see that by forming two lines and walking next to each other, the entire class would pass through the door much more quickly.
2. Explain to students that this is called working in **parallel**. Draw two parallel lines under the word "parallel." Ask students to describe the lines. Guide students to see that parallel lines are lines that run next to each other. Ask the class to come up with examples of how working in parallel to complete a task makes the work go faster. Examples might be having family members working together to complete a chore, such as two people cleaning a room or two people preparing a salad.
3. Tell the students that the same is true in computer programming. Codes can be completed more quickly when they are run in parallel rather than one after the other.
4. Remind the students that songs are created when they have more than one musician working together, such as a guitar player, a drummer, and a singer playing together.
5. Have the students create their three different codes for the three musicians in Coding Jam Studio, and notice how each musician's code sounds when it is played separately.
6. Once they have completed this, have the students play their songs for the class, and notice how the three codes sound when they are played together.



STEM

All Together Now (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACTDIP011
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM

7. Discuss with the class how even though there are three codes written to create their songs, the codes for the three musicians run in parallel to make the individual codes play at the same time, creating one song.

Teacher Note

Level: Studio

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Students can complete questions 1 through 3.
- Help the students write “good” if they like the way the codes sound played together, or “bad” if they do not like how the codes sound together to answer question 4.

Grade 1 and 2:

- Students can complete the Journal Notes.

To further your learning, see the Journal Notes on page 148.



STEM

The Kitchen Monkey Song

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Jam app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Jam* app. Students will be able to understand number relationships.

Vocabulary | Concepts

repeat
subroutine

Activity

1. Have the students sing an age-appropriate song together that they already know and that has repeated words and a chorus, such as *Old MacDonald* or *The Wheels on the Bus*.
2. Explain to students that many songs have words or sounds that happen again and again, such as "E-I-E-I-O" in *Old MacDonald*, or "round and round, round and round" in *The Wheels on the Bus*. These words and sounds are **repeated**.
3. Explain to students that many songs also have different parts. Share that in a verse the words do change, but in a chorus the words do not change. Calling the parts of the song a "chorus" or "verse" helps people to quickly and easily know what tune and words to sing by saying only one word. Tell the students that in computer programming, a series of steps that are saved as a single thing is called a **subroutine**. A subroutine is like a chorus or verse in that the words and sounds are saved to play later.
4. Have the students help the monkey play a song. First each student can create a subroutine verse by placing Coding blocks to create a verse they like. They can use the Repeat block to repeat any sounds that they want. Students can save this verse to the star Subroutine block (★).
5. Next, they can create a subroutine chorus by placing Coding blocks to create a chorus they like. They can use the Repeat block to repeat any sounds that they want. They can save their chorus to the two circle Subroutine blocks (◎).



STEM

The Kitchen Monkey Song (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACTDIP011
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM
- MUES1.2
- MUS1.2

6. Students can then play their songs by arranging the Subroutine blocks chorus-verse-chorus (◎★◎).
7. Have students share their Kitchen Monkey songs and discuss how a subroutine made coding their songs easier.
8. Bonus Students can rearrange the blocks to see how the order of the Subroutine blocks changes the song.

Teacher Note:

Level: Studio

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Students can complete questions 2 and 3.
- Help students complete the sentence starter in Question 4.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 150.



STEM

Long Song

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Jam app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Jam* app. Students will be able to understand number relationships.

Vocabulary | Concepts

quantifier

Activity

1. Write the word “amount” on chart paper. Explain to students that “amount” is the total number of things. Have kids form two lines. Then have students count off. Explain that the total number of students in each line is the amount of students in each line. Then share with students that another word for amount is “quantity.” Write the word on chart paper under “amount.”
2. Ask the students if a quantity is an amount, what might a quantifier do? Help the students discuss what the word could mean, and lead them to the definition that a **quantifier** is something that determines amounts.
3. Introduce the students to the Quantifier blocks, explaining that when this block is placed next to a Coding block, it makes that block play that many times (e.g., a “2” next to a Walk block will make Awbie walk two steps).
4. Have the students create a “Short Song” by selecting two Coding blocks and placing them (such as Walk, Jump).
5. Have the students extend the pattern by adding 4 more identical Coding blocks. The “Long Song” will now have 6 blocks.
6. Remind the students that a Repeat block will make all the blocks beneath it play again. Adding a Quantifier block to this will make the Repeat block happen an additional number of times (e.g., a “2” next to a Repeat block will make the song play once, then repeat 2 additional times).



STEM

Long Song (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM
- MUES1.2
- MUS1.2

7. Ask the students to recreate their Long Song using as few blocks as possible. Remind the students that since their song plays once then repeats twice, they will want to use a "2" Quantifier block (not a "3").
8. Bonus Students can then make even longer songs by increasing the Repeat block's Quantifier block value, and adding Quantifier blocks to the other Coding blocks.

Teacher Note:

Level: Studio

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Divide the classroom up into two groups. Hold up a large print-out of a Coding block and have the students act out the action that the block shows. Then, also hold up a Quantifier block, and have the students perform the action that many times.
- Students can then complete the questions in the Journal Notes.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 152.



STEM

Musical Program

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Jam* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Jam* app. Students will be able to describe objects in an environment. Students will be able to analyze data.

Vocabulary | Concepts

program

Activity

1. Play a game of “Simon Says” with students. Share that what Simon says are instructions. Simon tells the students what to do. Explain to students that a computer **program** is a set of instructions that tells the computer what you want it to do. In Coding Jam Studio, programs tell the character which objects to use to make their songs.
2. Review with the students how each of the Coding blocks works in Coding Jam Studio:
 - a. Orange Hand blocks use objects in the innermost ring.
 - b. Blue Walk blocks use objects in the middle ring.
 - c. Red Jump blocks use objects in the outermost ring.
3. Have the students create programs using the Coding blocks (Hand blocks, Walk blocks, and Jump blocks).
4. Have students create a program that uses only objects within the inside (innermost) circle.
5. Have students create a program that uses only objects that are on the top of a circle.
6. Have students create a program that uses one object from each circle.
7. Have students create a program that uses one object from each direction.
8. Have students create a program that uses one object from each circle AND one object from each direction.



STEM

Musical Program (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM
- MUES1.2
- MUS1.2

Teacher Note:

Level: Studio

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grades K, 1, and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 154.



STEM

Purposeful Pause

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Jam* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Jam* app. Students will be able to model objects in an environment. Students will be able to analyze data.

Vocabulary | Concepts

delay function

Activity

1. Sing the “Itsy-Bitsy Spider” as a class, and have the students notice that each line ends with a pause:

The itsy-bitsy spider
Crawled up the water spout (pause).
Down came the rain and
Washed the spider out (pause).
2. Ask the students to try to sing the song again without any pauses. Ask the students which version of the song sounded better and was easier to understand.
3. As a class, discuss how sometimes having a pause is important, even in the middle of performing a task such as singing a song.
4. Explain to the class that in computer programming, having a pause in the middle of a program is called a **delay function**, and that delay just means to be late (such as a school bus might be delayed due to weather). Explain that these delays last a set amount of time.
5. Show the students the Rest block. Explain that the Rest block causes the musicians to pause for a single beat.
6. Have the students practice using delay functions in Practice Level 5 of *Coding Jam*.
7. Ask the students to notice how the pauses of the two musicians allow the third musician to be heard alone (solo).
8. Have the students practice using delay functions in Practice Level 7 of *Coding Jam*.



STEM

Purposeful Pause (Cont.)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM
- MUES1.2
- MUS1.2

9. Ask the students to notice how the pauses of the two musicians allow the third musician to be heard both with the musicians (as part of the band) and alone (as a solo).
10. Bonus Students can practice using delay functions in their own songs in the Coding Jam Studio.

Teacher Note:

Level: Lessons 5 & 7

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- The class can play Red Light/Green Light with the Coding blocks by holding up a large print-out of a Coding block and having the students act out the action that the block shows; when the Rest block is held up, the students will stop performing the action.
- Once this is complete, lead the students in practicing their writing skills by helping the students write the words “stop” and “red” in the spaces for questions 2 and 4 respectively.
- Students can then use the cut-outs to help them answer questions 1 and 3 in the Journal Notes.

Grades 1 and 2:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 156.



STEM

Same Sounds

Grades

K to 2nd

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Jam* app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding blocks and *Coding Jam* app. Students will be able to understand the relationship between numbers.

Vocabulary | Concepts

variables

Activity

1. Explain to the students that sometimes people use one word or phrase to stand for something else. For example, sometimes menu items are ordered by a number, such as how “meal 1” stands for a series of items (for example, a sandwich, fries, and a drink).
2. In computer programming, the thing that stands for something else is known as a **variable**. Variables can take the place of something simple, like saying “drink” instead of “juice,” or they can take the place of something more complex, like saying ordering “meal 1” instead of ordering a sandwich, fries, and a drink.
3. Ask the students if there is a block that they sometimes use in place of other blocks. Lead the students to understand that the Subroutine blocks (Circle blocks, Square block, and Star block) are used in place of other Coding blocks. These Subroutine blocks can therefore also be considered variables in their codes.
4. In *Coding Jam Studio*, have the students pick a character for musician 1 and create a song using 4 Coding blocks. Have them save this code.
5. Next, have the students select the same character for musician 2 and the same Coding blocks, but program a Subroutine block to take the place of the first two Coding blocks. Have them save the code using the Subroutine block and the last two Coding blocks. (See PowerPoint for example.)



STEM

Same Sounds (*Cont.*)

Australian Standards

- ACTDIK001
- ACTDIP004
- ACELY1646
- ACELY1784
- ACELY1656
- ACELY1788
- ACELY1666
- ACELY1789

NSW Education Standards

- ST1-3DP-T
- ST2-3DP-T
- MAe-2WM
- MAe-3WM
- MA1-2WM
- MUES1.2
- MUS1.2

6. Then, have the students select the same character for musician 3 and the same Coding blocks again, but program one Subroutine block to take the place of the first two Coding blocks and program a second Subroutine block to take the place of the last two Coding blocks. Have them save the code using the two Subroutine blocks in place of all of the Coding blocks. (See PowerPoint for example.)
7. Have the students listen to their songs with all three musicians playing together.
8. Point out that the three musicians played the same song. Then discuss why the song sounds the same when the three musicians play all together, even though they have different codes with different numbers of blocks.

Teacher Note:

Level: Studio

All Grades:

- Help the students cut out the cut-out blocks to use to help them answer the questions as needed.

Grade K:

- Students can answer question 1 in the Journal Notes.
- Students can use the cut-outs to help them answer questions 2 and 3 in the Journal Notes.

Grades 1 and 2:

- After completing the lesson, students can complete the Journal Notes. Students can use cut-outs to help them answer questions in the Journal Notes as necessary.

To further your learning, see the Journal Notes on page 158.



STEM

The Musicians' Code

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Jam app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding Jam blocks and Coding Jam app. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

code
program
input
output

Activity

1. Explain that some words are made of parts that can tell us their meaning. Write **input** on chart paper. Underline the word *in*. Ask the students what they think input might mean. Then explain that instructions we put into the computer that tells the computer what we want it to do are called computer **codes**. Giving the computer the codes is inputting the information into the computer.
2. Ask students what word is the opposite of "in"? (out) Then ask: If input is the information we put into the computer, what might we call information that comes *out* of the computer? Help the students understand that **output** is what the computer does in response to the input.
3. Explain to students that in computer coding, the information input into the computer is the computer **program**. It is the set of instructions that tells the computer what to do. In the Coding Jam Studio, the programs tell the musicians which objects to use to make their songs. The music that the musicians play is the output.
4. Review with the students how each of the Coding blocks works in Coding Jam Studio:
 - a. Orange Hand blocks use objects in the innermost ring.
 - b. Blue Walk blocks use objects in the middle ring.
 - c. Red Jump blocks use objects in the outermost ring.
5. Have the students choose a character to be musician 1. Using a total of four Hand, Walk, or Jump blocks, students should create their computer code using only objects that are on the top of the circles. Students should then record this code in question 1 of the Journal Notes.



STEM

The Musicians' Code (Cont.)

Australian Standards

- ACTDIP010
- ACTDIP011
- ACTDIP019
- ACTDIP020
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

6. Have the students choose the same character to be musician 2. Using a total of four Hand, Walk, or Jump blocks, students should create their computer code that uses one object from each direction. Students should then record this code in question 2 of the Journal Notes.
7. Have the students choose the same character to be musician 3. Using a total of four Hand, Walk, or Jump blocks, students should create their computer code using one object from each circle AND one object from each direction. Students should then record this code in question 3 of the Journal Notes.
8. Students should discuss how even though the same character and instruments are being used, the outputs of the three programs are different because their codes are different. Students can record their answers in question 5 of the Journal Notes.

Teacher Note:

Level: Studio

All Grades:

- Write question 5 on the board. Lead students to think-loud answers to question 5. Help students record their answers as needed. All students can complete questions 1 through 4 in the Journal Notes.

To further your learning, see the Journal Notes on page 160.



STEM

What's Next?

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Jam app, iPad 2 or higher, set of magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students are able to correctly identify and apply lesson vocabulary and concepts as they document their learning and create programs using the Osmo Coding Blocks and *Coding Jam* app. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

sequence

Activity

1. Explain to students that the **sequence**, or order, of events is important. Invite students to tell the order of events from when they wake up until they go to bed. Then ask students to tell why the sequence of events is important to their lives. (You need to wake up first, get ready for school, and eat breakfast *before* going to school.)
2. Ask the students if they think sequence is important in music. Have the students explain why and give examples. (Examples might include singing words out of order, or playing the ending of a song before the beginning.)
3. Explain to the students that sequence is important for computer programming too. For a computer program to work, the steps have to be in the right order for the correct outcome to occur.
4. In Coding Jam Studio, have the students select a character for musician 1 and choose 4 Coding blocks to play a song. Have the students record this sequence in their journal notes.
5. Students should then select the same character for musician 2 and use the same Coding blocks in the same order, but move the last block to be the first block. Have the students record this sequence in their journal notes.
6. Students should then select the same character for musician 3 and the same Coding blocks, but change the order to any new order they like. Have the students record this sequence in their journal notes.
7. Discuss with the students how the sound of the song changed as the order of the blocks was changed.



STEM

What's Next? (Cont.)

Australian Standards

- ACTDIP010
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

Teacher Note:

Level: Studio

All Grades:

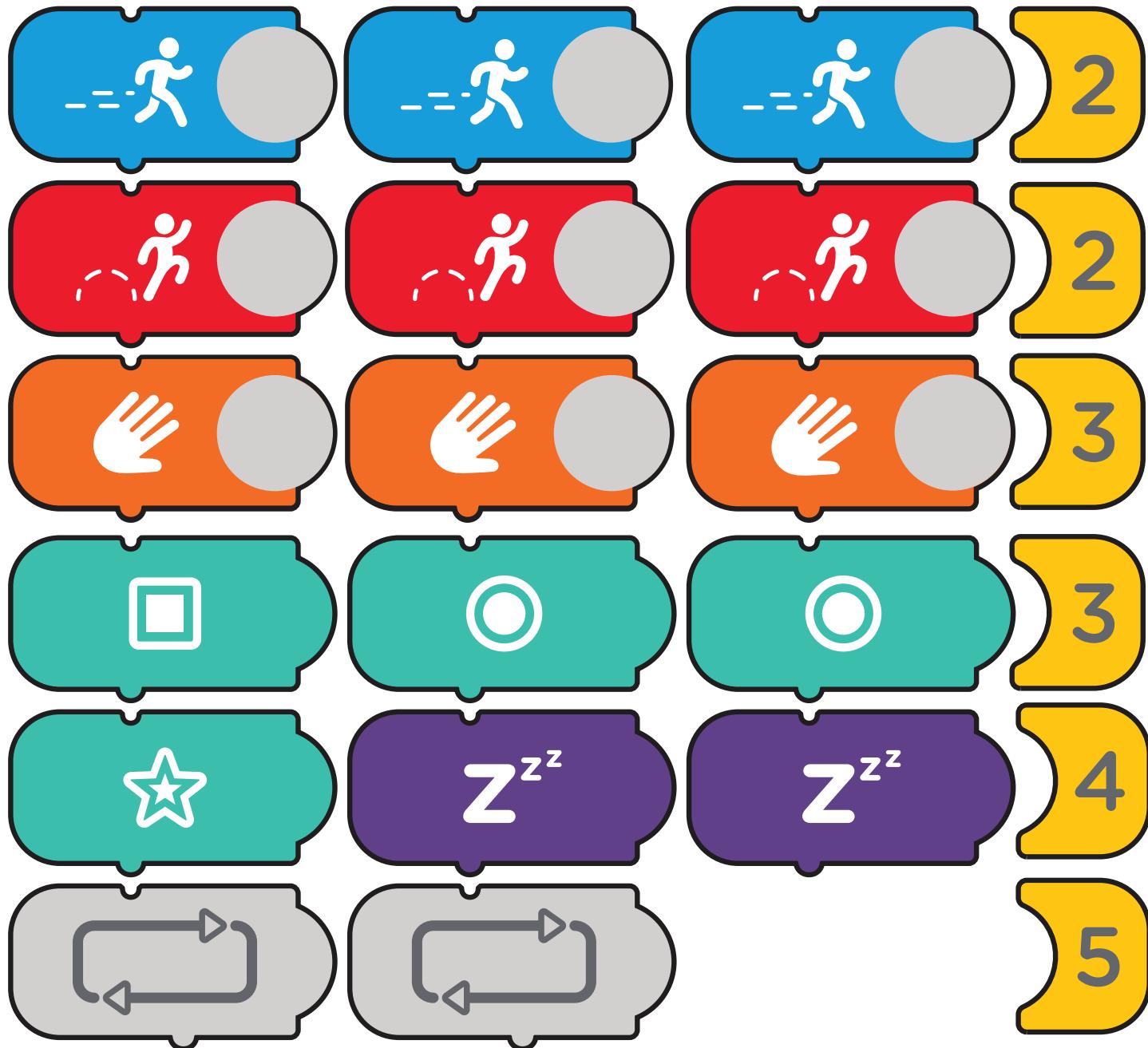
- Students should write the names of the block used to answer questions 1–3.
- Write question 4 on the board. Lead students to think-aloud answers to question 4. Help students record their answers as needed.

To further your learning, see the Journal Notes on page 162.



Coding Jam Cut-Out Blocks

These are the blocks used in Coding Jam. This page can be photocopied so that each child can have their own set of blocks to cut out. Children can draw the arrows on the blocks as needed to indicate the direction of the action.





STEM

Squish the Bugs!

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Duo* app, iPad 2 or higher, set of *Coding Awbie* and *Coding Duo* magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo *Coding Awbie* and *Coding Jam* blocks and *Coding Duo* app. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

bug
debug

Activity

1. Explain to students that sometimes when people create a program, something goes wrong, and the error is known as a **bug**.
2. On the board, write the words “activate,” “compose,” and “construct.” Ask the students what two letters are added to the word to mean to do the opposite of these words. Lead the students to add the letters “de-” to mean “undo.”
3. Part of being a good coder is determining where the error is, and correcting it. Ask the students what it might be called to remove an error (or bug) from a program. Lead the students to determine that removing a bug is known as **debugging**.
4. Students will use the codes provided to program Mo’s and Awbie’s moves in the *Coding Duo* level “Wiggly River,” then execute the programs.
5. Students will note that the codes do not allow Mo and Awbie to complete the level, and will determine what the bug is that stopped the programs from completing. Students will record their answers to questions 1 and 2 of the Journal Notes.
6. Students will add a Rest block, and record their answer to question 3 of the Journal Notes.
7. Students will execute the code and then note that the codes have fixed the initial problem, but have revealed another bug. Students will record their answers to question 4 of the Journal Notes.



STEM

Squish the Bugs! (Cont.)

Australian Standards

- *ACTDIP010*
- *ACELY1676*
- *ACELY1688*
- *ACELY1699*

NSW Education Standards

- *ST2-3DP-T*
- *ST3-3DP-T*
- *MA2-2WM*
- *MA2-3WM*
- *MA3-2WM*
- *MA3-3WM*

8. Students will change or add a single Coding block to fix the new problem, and then execute the code. Students will repeat this step until Mo and Awbie successfully complete the level. Then students record their final codes in question 5 of the Journal Notes.
9. Have students discuss the pros and cons of debugging a program stepwise, rather than trying to fix all of the bugs at once.

Teacher Note:

Level: Wriggly River

All Grades:

- Students will be able to complete the Journal Notes.

To further your learning, see the Journal Notes on page 164.



STEM

Waiting Game

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Duo* app, iPad 2 or higher, set of *Coding Awbie* and *Coding Duo* magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo *Coding Awbie* and *Coding Jam* blocks and *Coding Duo* app. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

delay function

Activity

1. Discuss, as a class, how sometimes having a pause is important especially when two people are working together to complete a task. Explain that pausing works as a review on the work being done.
2. Explain to the class that in computer programming, having a pause in the middle of a program is called a **delay function**, and that delay just means to be late (such as a flight or a sports game might be delayed due to weather). Explain that these delays are for a predetermined amount of time.
3. Introduce the students to the Rest block. Explain that the Rest block causes the character to pause for one moment before continuing the program.
4. In the level “Narrow Way,” have the students create the program given for Mo and Awbie. Have students execute the code. Students will note that Mo and Awbie are not able to complete the level because they both go to the same square at the same time.
5. Next, have the students add a **Rest block** to Mo’s code so that Mo and Awbie do not end up on the same square at the same time. Have students execute the code.
6. If Mo and Awbie are still unable to complete the level, students should try moving the Rest block to other places in the code until they are able to complete it.



STEM

Waiting Game (Cont.)

Australian Standards

- ACTDIP010
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

Teacher Note:

Level: Narrow Way

All Grades:

- Write question 3 on the board. Lead students to think-loud answers to question 3. Help students to record their answers as needed.

Grade 3

- Help students to record their answers as needed for question 4.

Grades 4 and 5:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 166.



STEM

Working Together

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Duo* app, iPad 2 or higher, set of *Coding Awbie* and *Coding Duo* magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo *Coding Awbie* and *Coding Jam* blocks and *Coding Duo* app. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

parallel

Activity

1. Have students form pairs and ask each pair to draw a sheep and write the words “Mary had a little lamb” in the shortest time possible. After the exercise, encourage the students to realize that the tasks were accomplished faster when the two partners each performed one of the tasks at the same time.
2. Explain to students that this is called working in **parallel**. Remind the students that parallel lines are lines that run next to each other, just as each pair worked in parallel. Ask the class to come up with other instances of working in parallel to complete tasks more quickly. Examples might include having one person wash dishes while another person dries dishes, or having one person cook a meal while another person sets the table.
3. Tell the students that the same is true in computer programming. Codes are often run in parallel to accomplish more in a shorter time period.
4. Have the students go to the level “Marooned” and try to have Awbie complete the level alone.
5. Next, have students program Awbie and Mo in parallel, so that the two codes accomplish the single goal of getting them both to complete the level.
6. Discuss how the characters are able to complete the level when the two programs are run in parallel, allowing the characters to help each other.



STEM

Working Together (Cont.)

Australian Standards

- ACTDIP010
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

Teacher Note:

Level: Marooned

All Grades:

- Write question 1 on the board. With students, do a think-loud to answer question 1. Help students record their answers as needed.

Grade 3

- Help students use the sentence starters in question 1 to complete their answers to the question. Help students record their answers as needed.

Grades 4 and 5:

- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 168.



STEM

Plan for Stan

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Duo app, iPad 2 or higher, set of *Coding Awbie* and *Coding Duo* magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo *Coding Awbie* and *Coding Jam* blocks and *Coding Duo* app. Students will be able to ask questions, use observations to test a claim, and plan and investigate claims. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

pseudocoding

Activity

1. Discuss with the students different types of instructions that people write to help them create plans. Examples might include recipes for foods to prepare or plans for building houses.
2. Explain to the students that sometimes computer programmers draw or write down the steps for a program before they create the program. This helps them figure out the best way to accomplish their goal. Tell the students that this is known as **pseudocoding**.
3. Tell the students that they are going to pretend their friend "Stan" is out sick today, and won't be able to complete today's lesson until tomorrow. They will therefore create a plan for their friend Stan to build and execute when he comes back to school.
4. Students can pick the level of their choice and create a plan to help Stan get Mo and Awbie to complete the level. Have the students write their name in question 1, the level name in question 2, and write down or draw their plan in question 3 of the Journal Notes.
5. Next, have the students trade page one of their Journal Notes with each other. Students should then play the part of Stan, the builder, and try to execute the code given to them as it was planned. Students should then answer questions 4, 5, and 6 in their own Journal Notes.
6. Students can then discuss the benefits of having a plan before creating a code.



STEM

Plan for Stan (Cont.)

Australian Standards

- ACTDIP010
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

Teacher Note:

Level: Any Level

All Grades:

- Write question 7 on the board. Lead students to think-loud answers to question 7. Help students to record their answers as needed.
- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 170.



STEM

Taking Turns

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo Coding Duo app, iPad 2 or higher, set of Coding Awbie and Coding Duo magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo Coding Awbie and Coding Jam blocks and Coding Duo app. Students will be able to ask questions, use observations to test a claim, and plan and investigate claims. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

strategy
random
delay function

Activity

1. Explain to students that people use **strategies** every day to ensure that their goals are met. Have the students discuss how teams often form strategies to ensure that they play well together.
2. Ask students what happens when a team has no strategy or plan. Explain to the students that the outcome of games without a strategy cannot be guessed, and that these outcomes can be called **random**.
3. Ask the students if waiting can be a strategy. Encourage the students to recognize that waiting for an event (for someone to invite you to their house, or for someone to pick you up from school) can be considered a strategy too. Introduce the students to the Sleep block, which allows them to have one character wait while the other character makes one move.
4. Explain to the class that in computer programming, having a pause in the middle of a program is called a **delay function**, and that delay just means to be late (as a flight might be delayed). Explain that these delays are for a predetermined amount of time. Tell students that the Sleep block is asking the computer to delay itself for a bit before the next action.
5. In level “One at a Time” have the students create a code for Mo to move past the trees using the fewest blocks possible. Next, have the students create a code for Awbie to move past the trees using the fewest blocks possible. Then, have the students execute the two codes at the same time. Have students discuss why Mo and Awbie were unable to complete the level and record their answers in question 1 of the Journal Notes.



STEM

Taking Turns (Cont.)

Australian Standards

- *ACTDIP010*
- *ACELY1676*
- *ACELY1688*
- *ACELY1699*

NSW Education Standards

- *ST2-3DP-T*
- *ST3-3DP-T*
- *MA2-2WM*
- *MA2-3WM*
- *MA3-2WM*
- *MA3-3WM*

6. Next, have the students strategise how to help Awbie and Mo move past the trees one at a time. Students may want to act out their strategies to help them select their blocks. Once they have selected a strategy and their blocks, the students should use their Play block and execute the codes.
7. Have students discuss why strategizing helped them get both characters to move past the trees, and record their answers in question 3 of the Journal Notes.

Teacher Note:

Level: One at a Time

All Grades:

- Students can answer questions 1, 3, and 4 in their groups.
- Write question 2 on the board. Lead students to think-aloud answers to question 2. Help students record their answers as needed.

To further your learning, see the Journal Notes on page 172.



STEM

Saving Blocks

Grades

3rd to 5th

Environment

Individual Stations, Groups of 2

Materials

Osmo base, reflector, Osmo *Coding Duo* app, iPad 2 or higher, set of *Coding Awbie* and *Coding Duo* magnetic Coding blocks, writing utensils in different colours, copies of Journal Notes

Objective

Students will be able to correctly identify and apply lesson vocabulary and concepts. Students will document their learning and create programs using the Osmo *Coding Awbie* and *Coding Jam* blocks and *Coding Duo* app. Students will be able to ask questions, use observations to test a claim, and plan and investigate claims. Students will be able to analyze data as appropriate.

Vocabulary | Concepts

variables
subroutine

Activity

1. Write on the board the words to “Red Rover”: “Red Rover, red rover, send (name) on over.” Ask the students whether they say, “send name on over” during the game. Lead the students to understand that “(name)” is a placeholder. The word “name” stands for the person’s name. They fill in the person’s name during the game (name = Sasha). Discuss with students how people frequently use one thing or word or phrase to stand for something else.
2. Explain to the students that in computer programming, the thing that stands for something else is known as a **variable**. Variables can take the place of something simple, for instance, saying “drink” instead of “orange juice,” or they can take the place of something more complex, for instance, ordering “the special” instead of ordering a salad, spaghetti with meatballs, and breadsticks.
3. Ask the students if having a Coding block that they could sometimes use in place of a bunch of other blocks would be helpful. Lead the students to understand that using a variable block to take the place of a bunch of other blocks can save time or blocks.
4. Introduce the students to the **Subroutine** blocks (Circle blocks, Square block, and Star block) and explain that they are used in place of other Coding blocks.
5. In the level of their choosing, have the students help Mo and Awbie successfully complete the level. Have the students record the number of blocks they used in these first codes in questions 2 and 3 of the Journal Notes.



STEM

Saving Blocks (Cont.)

Australian Standards

- ACTDIP010
- ACTDIP011
- ACTDIP019
- ACTDIP020
- ACELY1676
- ACELY1688
- ACELY1699

NSW Education Standards

- ST2-3DP-T
- ST3-3DP-T
- MA2-2WM
- MA2-3WM
- MA3-2WM
- MA3-3WM

6. Then, have the students replay the level, and replace part of Awbie's routine with one Subroutine block. Have the students replace part of Mo's routine with a different Subroutine block. Then have them replay the level again. Have the students record the number of blocks they used in the final codes in questions 4 and 5 of the Journal Notes.

Teacher Note:

Level: Wriggly River

All Grades:

- Write question 1 on the board. Lead students to think-loud answers to question 1. Help students use the sentence starters in question 1 to create their answers to the question. Help students to record their answers as needed.

Grade 3

- Help students to record their answers as needed for questions 6 and 7.

Grades 4 and 5:

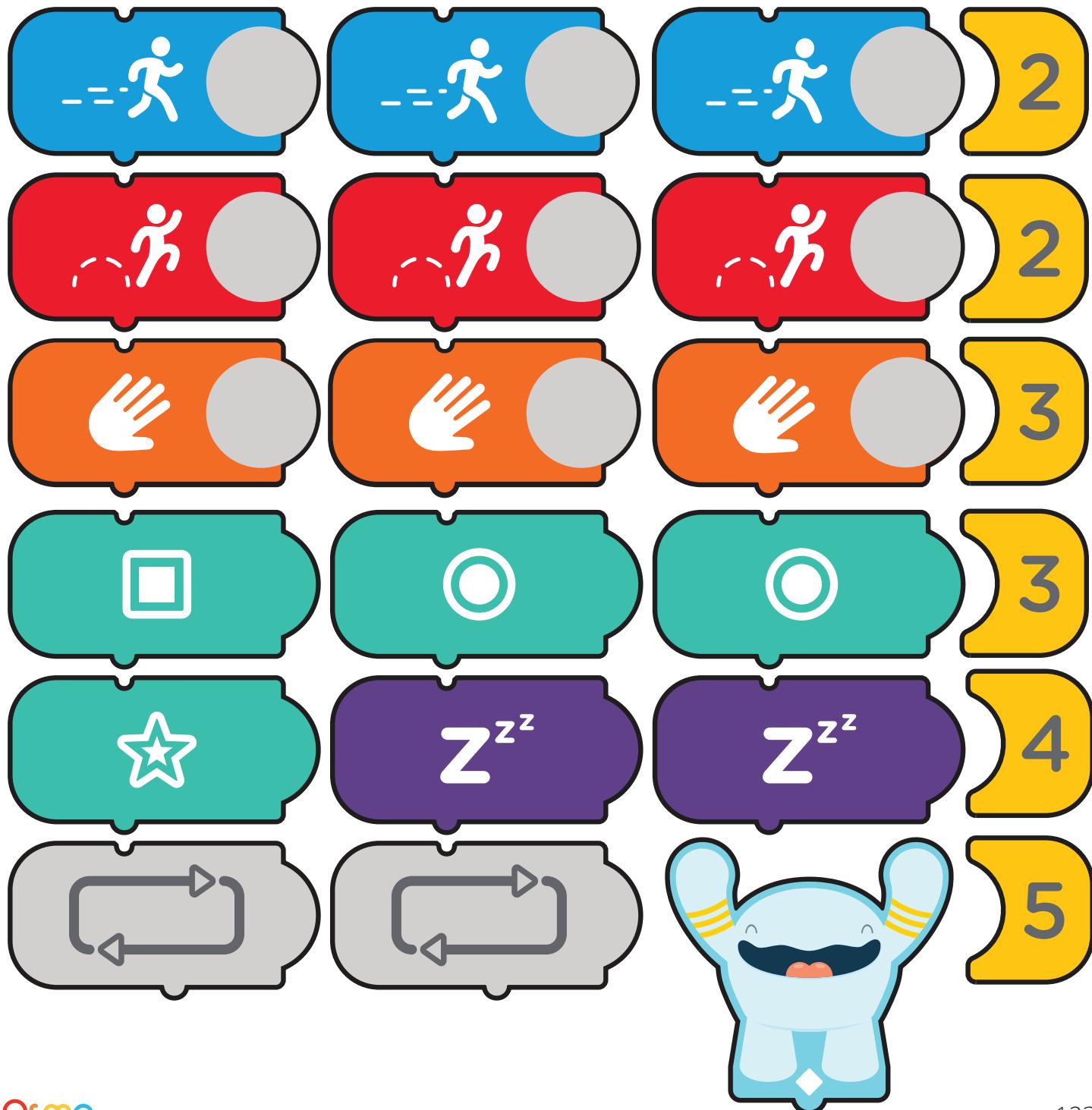
- Students can complete all questions in the Journal Notes.

To further your learning, see the Journal Notes on page 174.



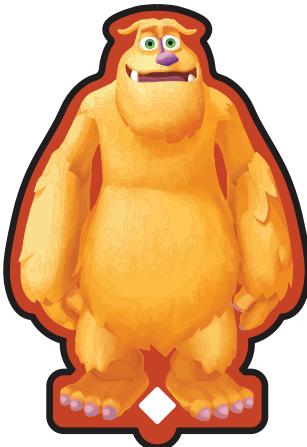
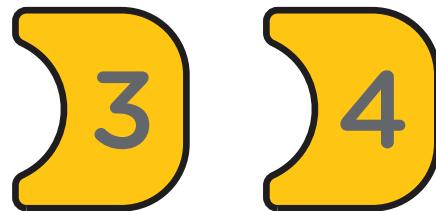
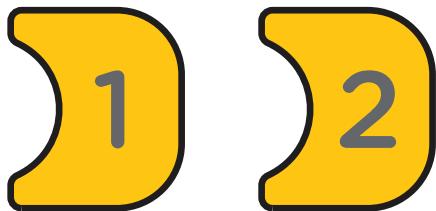
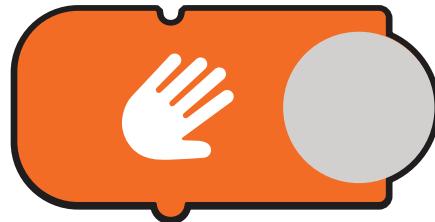
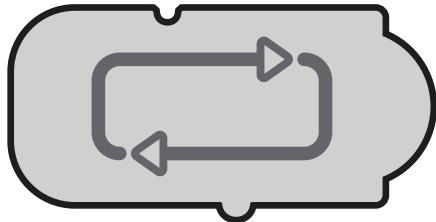
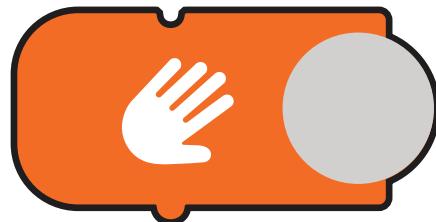
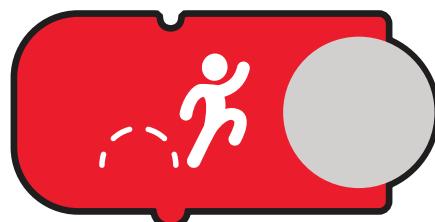
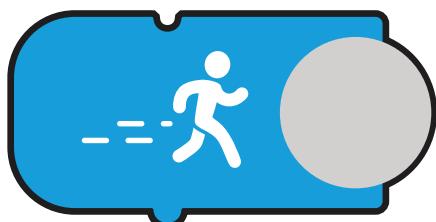
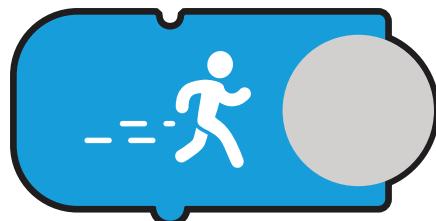
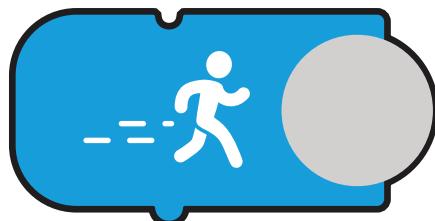
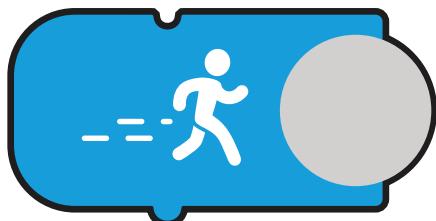
Coding Duo Cut-Out Blocks

These are the blocks used in Coding Duo. This page can be photocopied so that each child can have their own set of blocks to cut out. Children can draw the arrows on the blocks as needed to indicate the direction of the action.





Coding Duo Cut-Out Blocks (Cont.)



All Ages Coding Journal Notes

Coding Awbie

Back to the Drawing Board (K / 1st / 2nd)	126
Catch the Critter! (K / 1st / 2nd)	128
Changing Colours (K / 1st / 2nd)	130
Collecting Strawberries (K / 1st / 2nd)	132
Crossing the River (K / 1st / 2nd)	134
Get the Pie! (K / 1st / 2nd)	136
Go Time (K / 1st / 2nd)	138
If Not This, Then What? (K / 1st / 2nd)	140
Break It Down (3rd / 4th / 5th)	142
If Awbie Can, Then He Will (3rd / 4th / 5th)	144
How Many Times (3rd / 4th / 5th)	146

Coding Jam

All Together Now (K / 1st / 2nd)	148
The Kitchen Monkey Song (K / 1st / 2nd)	150
Long Song (K / 1st / 2nd)	152
Musical Program (K / 1st / 2nd)	154
Purposeful Pause (K / 1st / 2nd)	156
Same Sounds (K / 1st / 2nd)	158
The Musicians' Code (3rd / 4th / 5th)	160
What's Next? (3rd / 4th / 5th)	162

Coding Duo

Squish the Bugs! (3rd / 4th / 5th)	164
Waiting Game (3rd / 4th / 5th)	166
Working Together (3rd / 4th / 5th)	168
Plan for Stan (3rd / 4th / 5th)	170
Taking Turns (3rd / 4th / 5th)	172
Saving Blocks (3rd / 4th / 5th)	174

Name _____

Journal Notes:

Back to the Drawing Board

Pseudocodes are plans that programmers use to visualize the steps they will need to include in their computer codes to reach their goal. In the boxes below, explain or draw your answers.

1. What is your goal for Awbie?

2. What are the steps it will take Awbie to reach the goal?

Journal Notes:

Back to the Drawing Board (*Cont.*)

3. What blocks will you need for Awbie to reach the goal? Show the order of your blocks.

4. How was having a written plan helpful before you created your code?

Name _____

Journal Notes:

Catch the Critter!

Strategies help people ensure that tasks are accomplished. In the boxes below, explain or draw your answers.

1. What was your **strategy** to help Awbie cross the river? Show the order of your blocks.

2. What happened to Awbie when you used the blocks in your **strategy**?

Journal Notes:

Catch the Critter! (*Cont.*)

3. What were the blocks that you selected at **random**? Show the order of your blocks.

4. What happened to Awbie when you used the **random** blocks instead?

Name _____

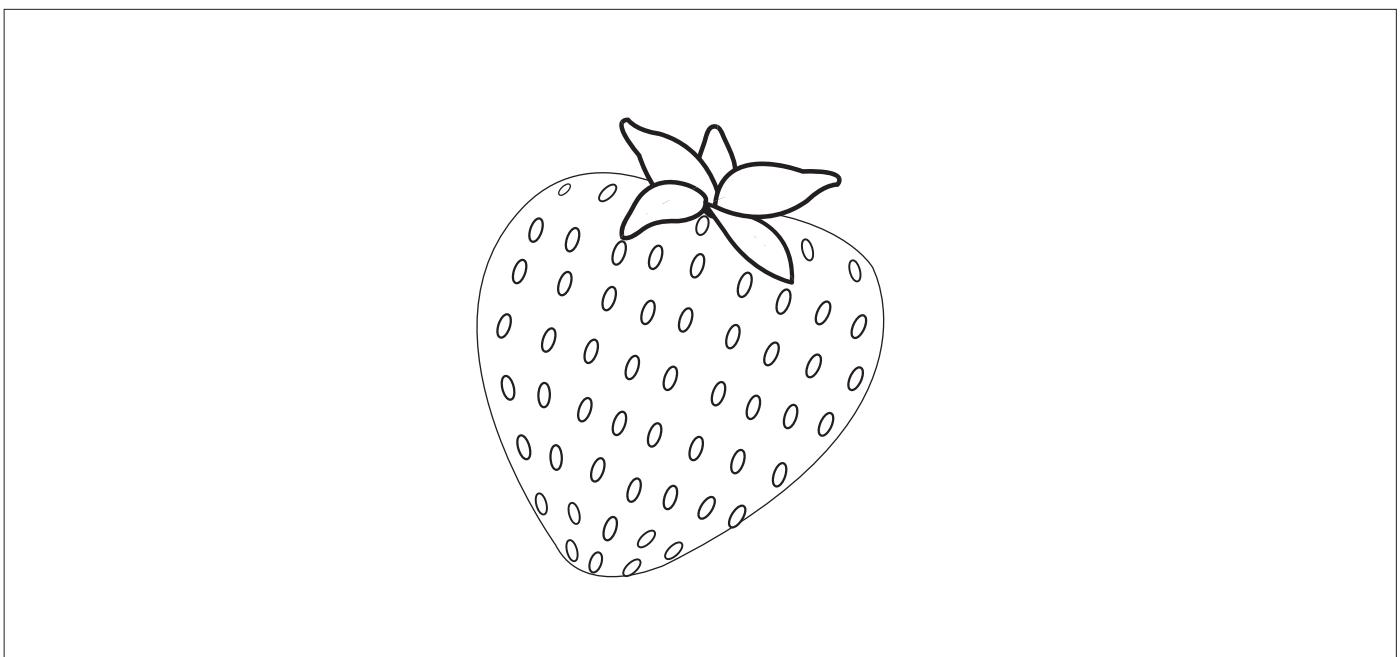
Journal Notes:

Changing Colours

Data conversion is when something is changed into a different form. In the boxes below, explain or draw your answers.

1. Which block **converts** red strawberries to other colours?

2. What colour does this block **convert** the strawberries to? Colour the strawberry below.



Journal Notes:

Changing Colours (*Cont.*)

3. How many points did you get for the new strawberries?

4. How did converting the strawberries help Awbie?

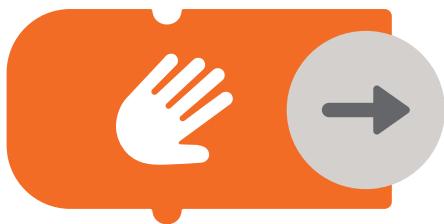
Name _____

Journal Notes:

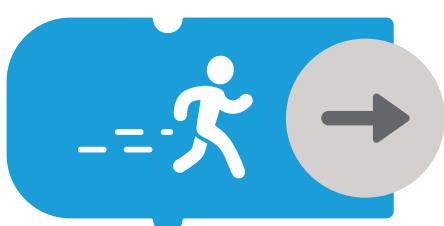
Collecting Strawberries

Each of the Coding blocks has a different purpose. Explain or draw a picture showing what each Coding block does.

1. This is the Hand block. What does the Hand block make Awbie do?



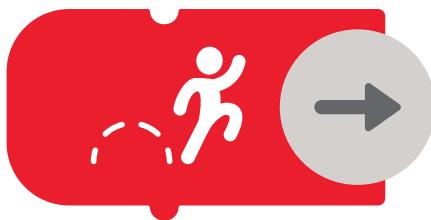
2. This is the Walk block. What does the Walk block make Awbie do?



Journal Notes:

Collecting Strawberries (Cont.)

3. This is the Jump block. What does the Jump block make Awbie do?



4. What is the difference between input and output? Explain or draw a picture:

Input is...

output is...

Name _____

Journal Notes:

Crossing the River

Sequence is important. In the boxes below, explain or draw your answers.

1. What was the **sequence** of blocks you used to help Awbie cross the river? Show the order of your blocks.

2. What happened when you used this **sequence** of blocks?

Journal Notes:

Crossing the River (*Cont.*)

3. What was the **sequence** when the same blocks were used, but in a different order? Show the order of your blocks.

4. What happened when the **sequence** of blocks was changed?

Name _____

Journal Notes:

Get the Pie!

Debugging programs makes sure that they run correctly. In the boxes below, explain or draw your answers.

1. What was the first **bug** you found in the program? Show the whole code, and circle the bug.

2. What did you do to **debug** this error? Show the whole code with your new **Coding block** in place of the bug. Circle the new Coding block.

Journal Notes:

Get the Pie! (Cont.)

3. What was the second bug you found in the program? Show the whole code, and circle the bug.

4. Show the correct order of Coding blocks that you used to help Awbie get the pie.

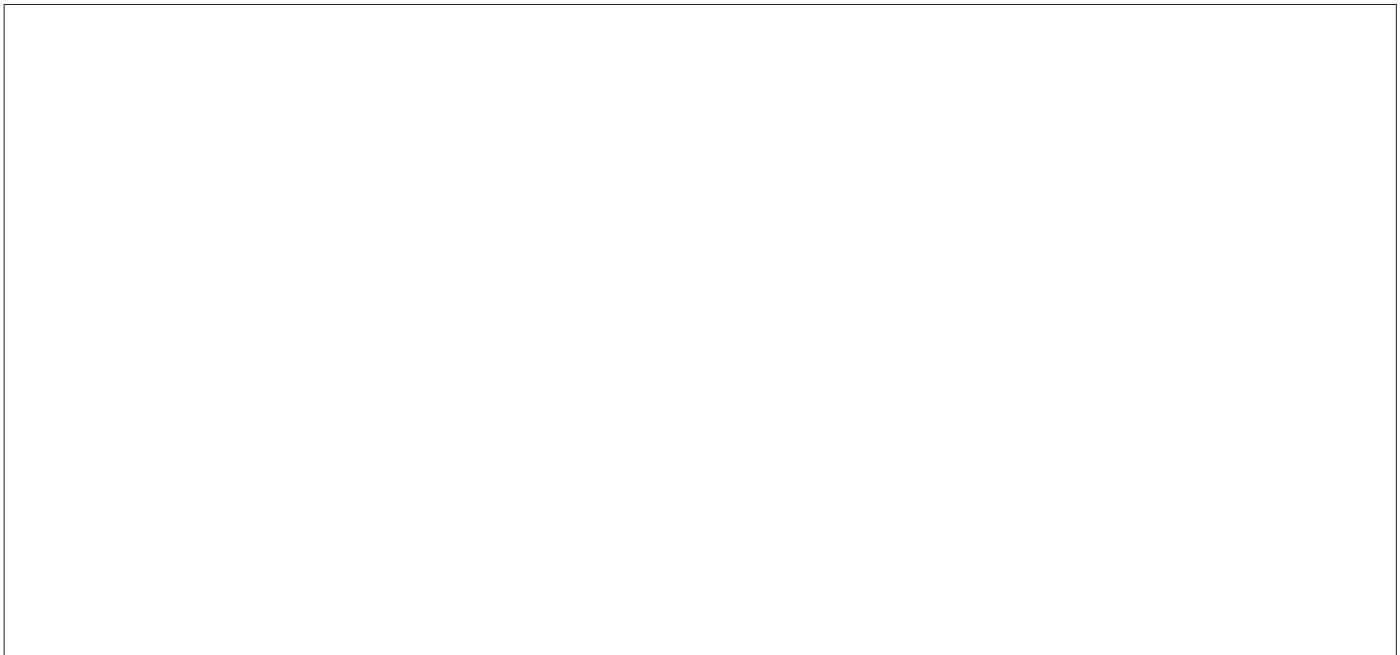
Name _____

Journal Notes:

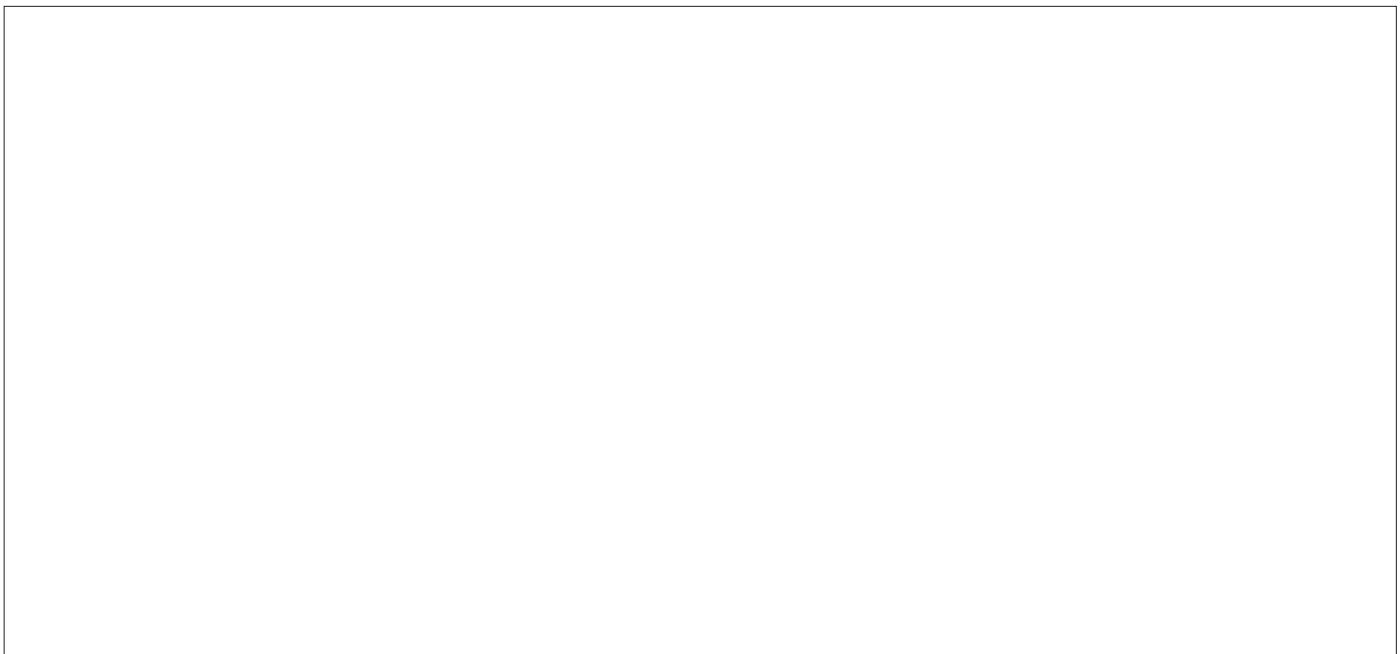
Go Time

Events are things that a user does to **execute** a code. In the boxes below, explain or draw your answers.

1. Which block tells Awbie it is time to **execute** the code?



2. What blocks did you choose to help Awbie cross the rivers? Show the order of your blocks.

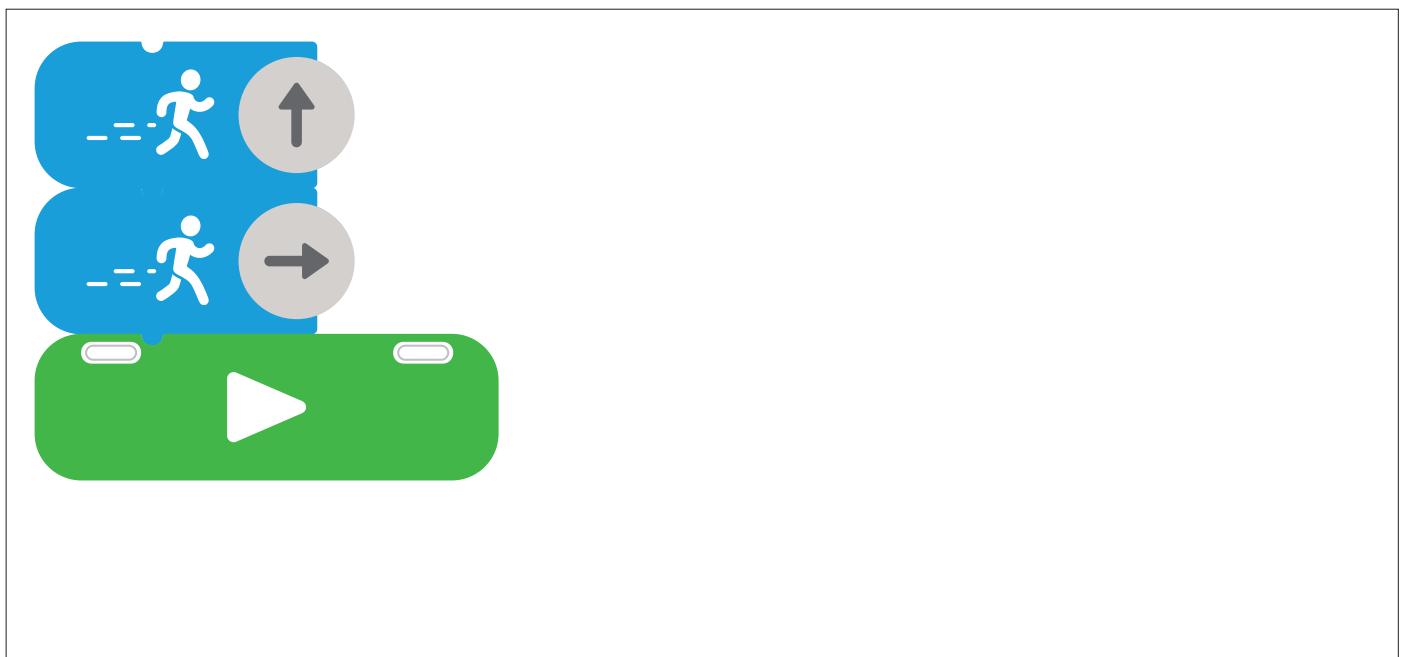


Journal Notes:

Go Time (*Cont.*)

3. What did Awbie do after you pressed the Play button?

4. Circle the blocks below that will code for the **event**.



Name _____

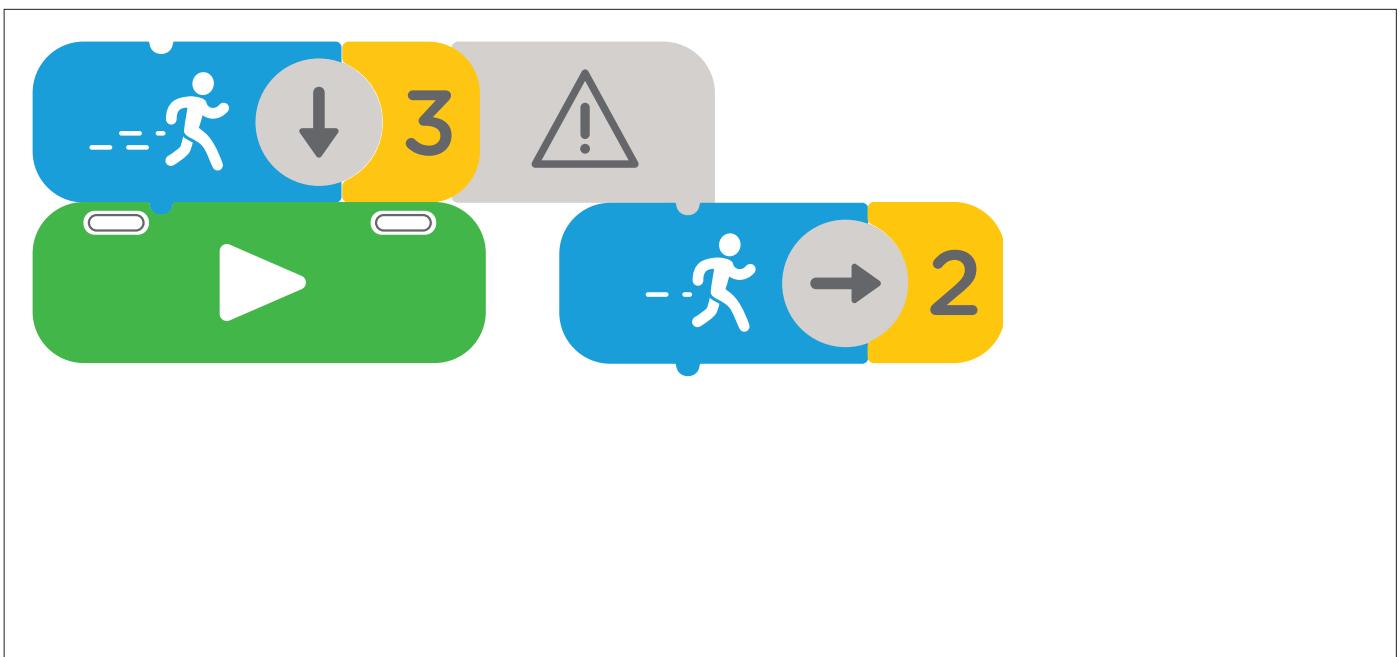
Journal Notes:

If Not This, Then What?

Conditional Statements help people let a computer know what to do if a code cannot be successfully played. In the boxes below, explain or draw your answers.

1. Which block is a **conditional statement**?

2. Circle your answer below. If Awbie's can't finish his original path, then what will he do instead?



Journal Notes:

If Not This, Then What? (*Cont.*)

3. Which of the following is a **conditional if-then statement**?
 - A. Dana wears sunglasses when it is sunny.
 - B. If it is cold, then we wear hats.
 - C. Isaac likes the colour green.
4. Which blocks did you use in your if-then statement to help Awbie cross the river? Show the order of your blocks

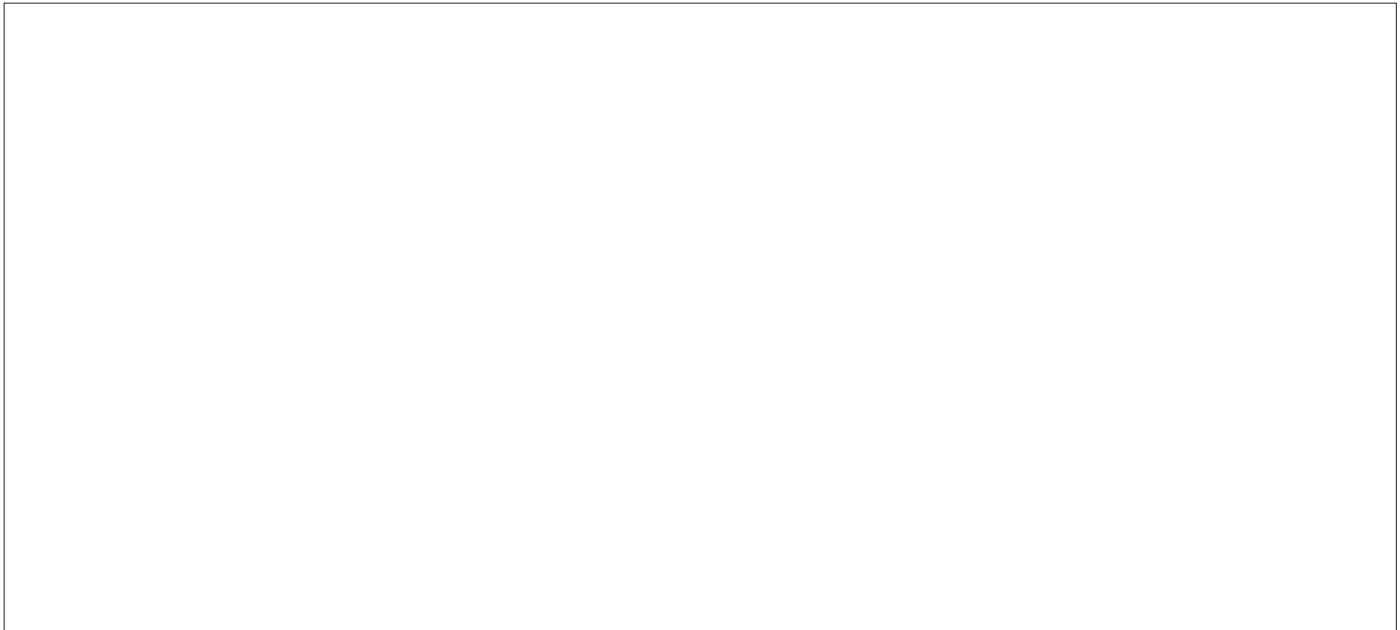
Name _____

Journal Notes:

Break It Down

Write your answers in the spaces below.

1. In the space provided, draw the layout of the Coding blocks used in the first part of the program:



2. In the space provided, draw the layout of the Coding blocks used in the second part of the program:



Journal Notes:

Break It Down (*Cont.*)

3. How did **decomposing** the problem into two parts help you create the program for Awbie to cross the river all at once?

4. Why would creating a whole program all at once be more difficult than **decomposing** the program first?

Name _____

Journal Notes:

If Awbie Can, Then He Will

Conditional Statements help computers know what to do if the code they are programmed with cannot be successfully executed. In the spaces below, explain your answers.

1. How are conditional statements (such as **if-then** statements) useful?

2. What is an example of a conditional statement that you have experienced in real life?

if _____

then _____

Journal Notes:

If Awbie Can, Then He Will (*Cont.*)

3. Complete the sentences below:

If Awbie uses a **Hand block** in *Coding Awbie*, then he will _____

But if Awbie uses a **Hand block** in *Coding Duo*, then he will _____

4. Which Coding block allows you to create a conditional statement for Awbie in *Coding Awbie*, so that if his path is blocked he takes a different path?

Name _____

Journal Notes:

How Many Times?

Write your answers in the spaces below.

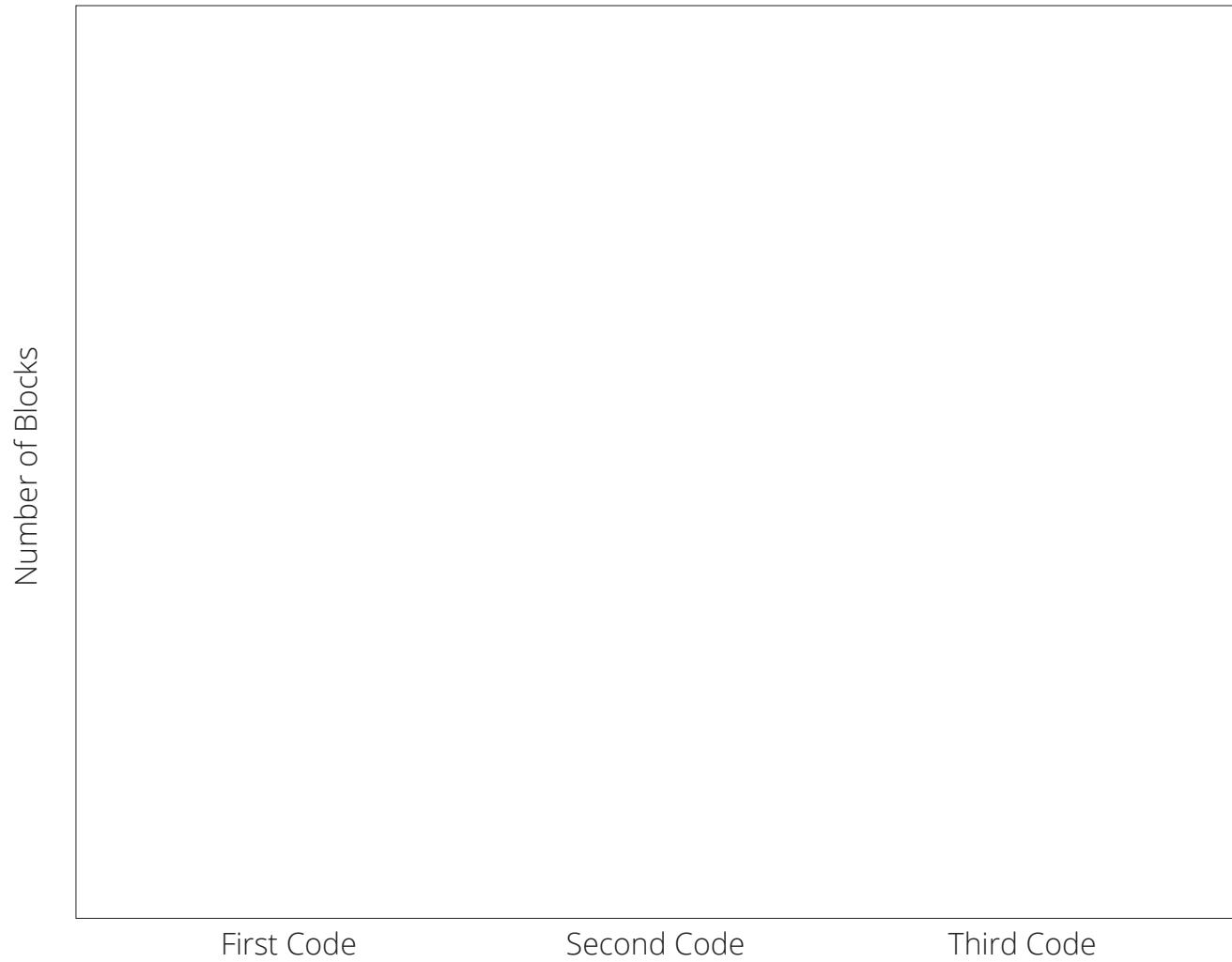
1. How many Coding blocks did Awbie's first program use? _____
2. How many strawberries did Awbie's first program collect? _____
3. How many Coding blocks did Awbie's second program use? _____
4. How many strawberries did Awbie's second program collect? _____
5. How many Coding blocks did Awbie's third program use? _____
6. How many strawberries did Awbie's third program collect? _____
7. In the space provided, draw the layout of the Coding blocks used in Awbie's third program:



Journal Notes:

How Many Times? (Cont.)

8. In the space provided, draw a bar graph showing how many blocks were used for each code.



9. Based on your graph, how many more Coding blocks did the first code use than the third code?

Name _____

Journal Notes:

All Together Now

Running codes in **parallel** allows a computer to complete multiple tasks at once. In the boxes below, explain or draw your answers.

1. What Coding blocks did you have your first musician play? Show the order of your blocks.

2. What Coding blocks did you have your second musician play? Show the order of your blocks.

Journal Notes:

All Together Now (*Cont.*)

3. What Coding blocks did you have your third musician play? Show the order of your blocks.

4. How does playing these three codes in **parallel** sound different from playing them separately?

Name _____

Journal Notes:

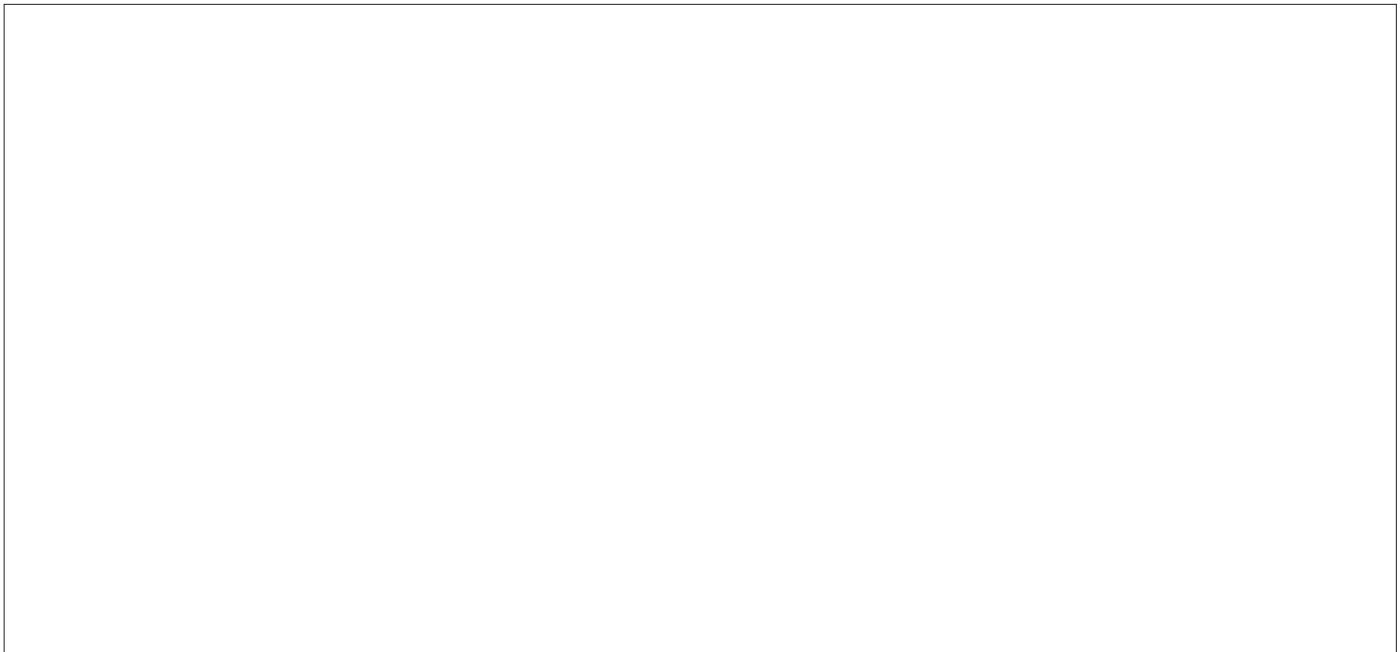
The Kitchen Monkey Song

Explain or draw a picture to answer the following questions.

1. What is something you **repeat** every day?



2. How many Coding blocks did you use in your chorus?



Journal Notes:

The Kitchen Monkey Song (*Cont.*)

3. How did you use **subroutines** to make your song? Show the Subroutine blocks you used to make your song.

4. Why would a **subroutine** make your everyday task easier?

A subroutine would make my everyday task easier because

Name _____

Journal Notes:

Long Song

Quantifiers help people know how many times something should be repeated. In the boxes below, explain or draw your answers.

1. How many Coding blocks did you use in your Short Song?

2. What was the most number of Coding blocks you used to make your Long Song?

Journal Notes:

Long Song (*Cont.*)

3. What was the least number of blocks you used to make your Long Song?

4. If you wanted your musician to play one sound 4 times, which blocks could you use?

Name _____

Journal Notes:

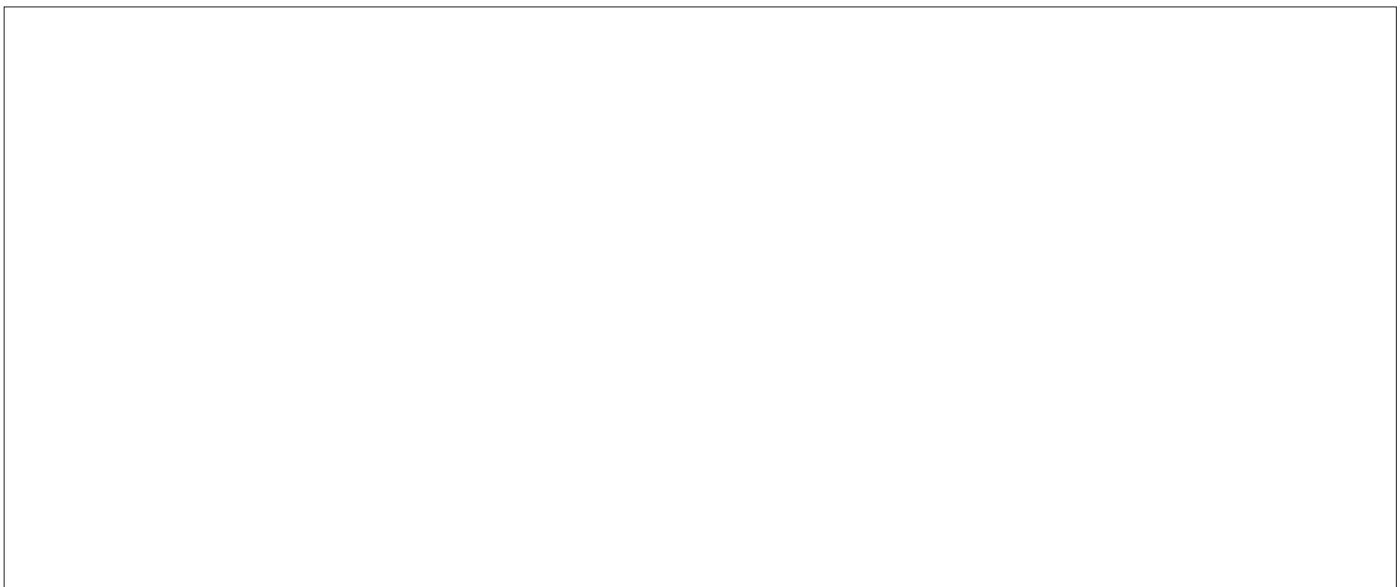
Musical Program

Programs allow you to tell the computer what to do. In the boxes below, explain or draw your answers. Use the blocks to show your program.

1. What **program** did you create to have the character play only objects in the inside circle?
Show the order of your blocks.



2. What **program** did you create to have the character play only one object from each circle?
Show the order of your blocks.



Journal Notes:

Musical Program (*Cont.*)

3. What **program** did you create to have the character play only one object from each direction? Show the order of your blocks.

4. What **program** did you create to have the character play one object from each circle AND one object from each direction? Show the order of your blocks.

Name _____

Journal Notes:

Purposeful Pause

Delay functions allow people to have a computer program pause in the middle. In the boxes below, explain or draw your answers.

1. Which of the blocks is used as a **delay function**?

2. What happens to one musician when the other two have a Rest block?

Journal Notes:

Purposeful Pause (*Cont.*)

3. What were all of the blocks that you chose for one of your musicians who used a Rest block?
Show the order of your blocks.

4. The Rest block is like which colour light from the game Red Light/Green Light?

Name _____

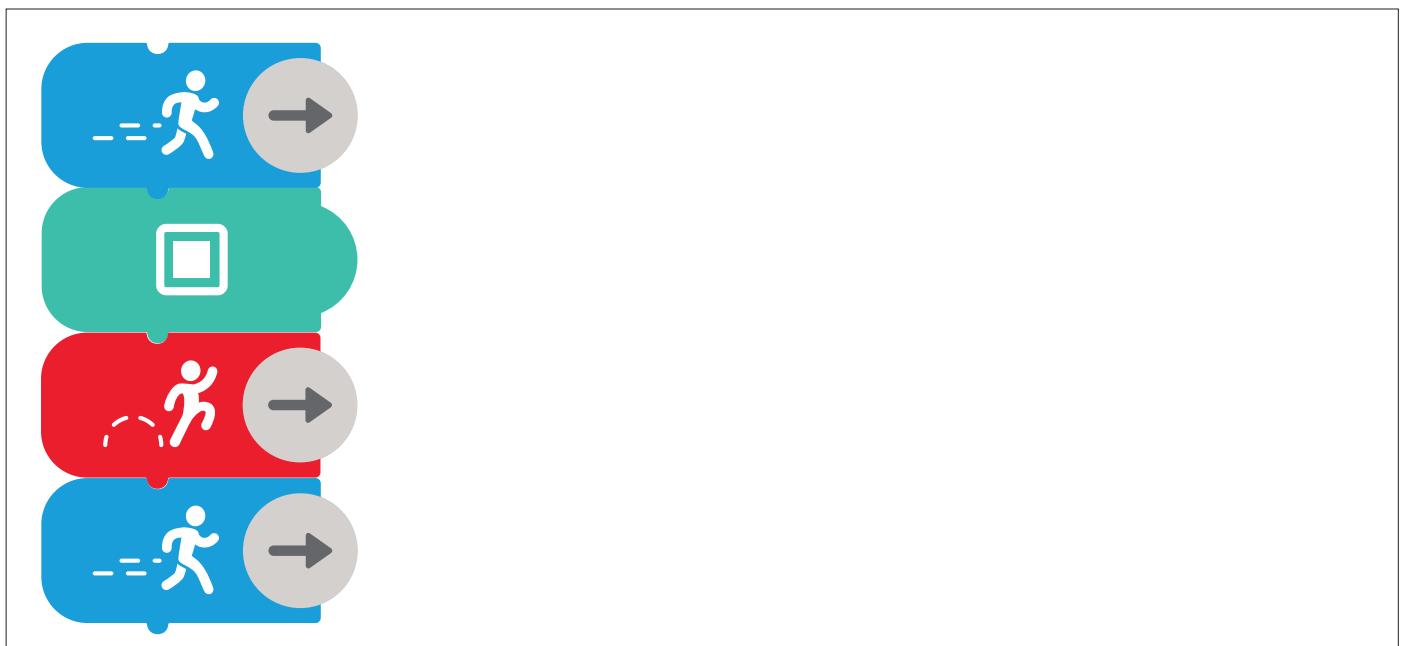
Journal Notes:

Same Sounds

Variables are plans that programmers use to visualize the steps they will need to include in their computer codes. In the boxes below, explain or draw your answers.

1. Circle the block that is the **variable** in this code.

2. Which blocks did you use for your first musician's code? Show the order of your blocks.



Journal Notes:

Same Sounds (*Cont.*)

3. Which blocks did you use for your last musician's code? Show the order of your blocks.

4. Why did the three musicians sound the same even though they had different codes?

Name _____

Journal Notes:

The Musicians' Code

Write your answers in the spaces below.

1. What **code** did you **input** for musician 1?

1st Block: _____

2nd Block: _____

3rd Block: _____

4th Block: _____

2. What **code** did you **input** for musician 2?

1st Block: _____

2nd Block: _____

3rd Block: _____

4th Block: _____

Journal Notes:

The Musicians' Code (*Cont.*)

3. What **code** did you **input** for musician 3?

1st Block: _____

2nd Block: _____

3rd Block: _____

4th Block: _____

4. Circle a word to complete the sentence:

We **input** / **output** the set of instructions that tells the computer what to do.

5. Why was the output different, even though the musicians and instruments were the same?

Name _____

Journal Notes:

What's Next?

Sequence is important to completing many tasks. Answer the following questions about how sequence was important to your songs.

1. What is the **sequence** of blocks the first musician plays?

1st Block: _____

2nd Block: _____

3rd Block: _____

4th Block: _____

2. What is the **sequence** of blocks the second musician plays?

1st Block: _____

2nd Block: _____

3rd Block: _____

4th Block: _____

Journal Notes:

What's Next? (Cont.)

3. What is the **sequence** of blocks the third musician plays?

1st Block: _____

2nd Block: _____

3rd Block: _____

4th Block: _____

4. How did changing the **sequence** of the blocks affect or change the song?

Name _____

Journal Notes:

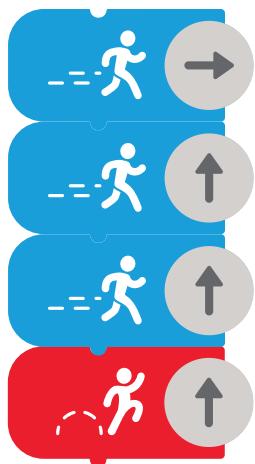
Squish the Bugs!

Write your answers in the spaces below.

- What happened when you executed Mo's and Awbie's first programs?

- Below, circle the **bug** (the block in each program that caused the program to not work).

Awbie



Mo



- Above, draw an arrow pointing to where you added the Rest block to **debug** the programs.

Journal Notes:

Squish the Bugs! (Cont.)

4. What happened when you executed Mo's and Awbie's new programs?

5. Write or draw the final programs that allowed Mo and Awbie to complete the level:

Awbie

Mo

--	--

Name _____

Journal Notes:

Waiting Game

Write your answers in the spaces below.

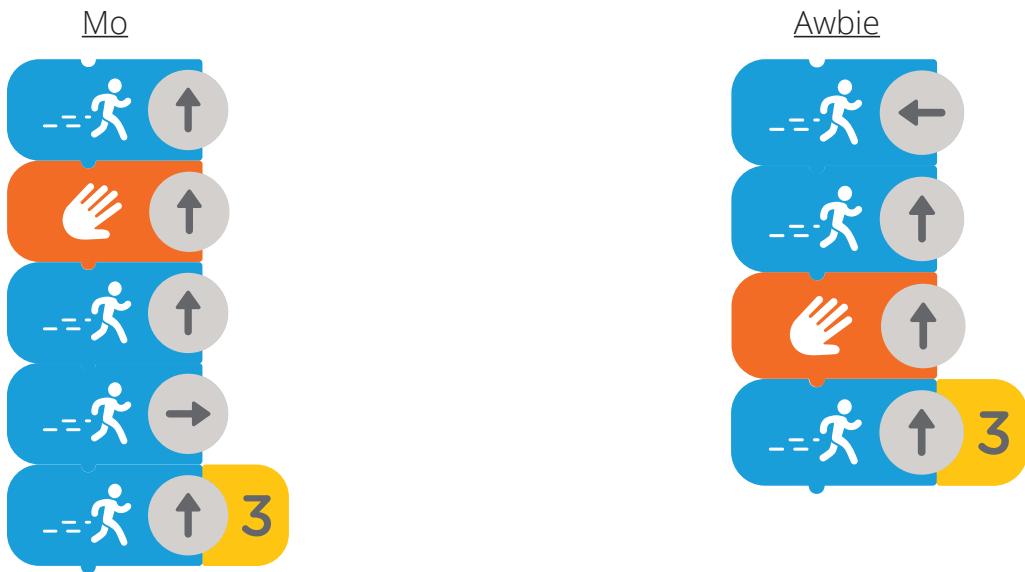
1. What would a computer programmer call the Rest block?

2. Why were Mo and Awbie not able to complete the level using the first code?

Journal Notes:

Waiting Game (Cont.)

3. Draw an arrow pointing to where you added the Rest block so that Mo and Awbie successfully completed the level.



4. How did adding the Rest block there help Mo and Awbie complete the level?

Name _____

Journal Notes:

Working Together

Write your answers in the spaces below.

1. What do **parallel** programs allow computers to do?

Parallel programs allow computers to _____

2. What is an example of working in **parallel** from your daily life?

Journal Notes:

Working Together (*Cont.*)

3. What happened when Awbie tried to complete the level alone?

4. What do you need to do in order for Mo and Awbie to complete the level together?

Name _____

Journal Notes:

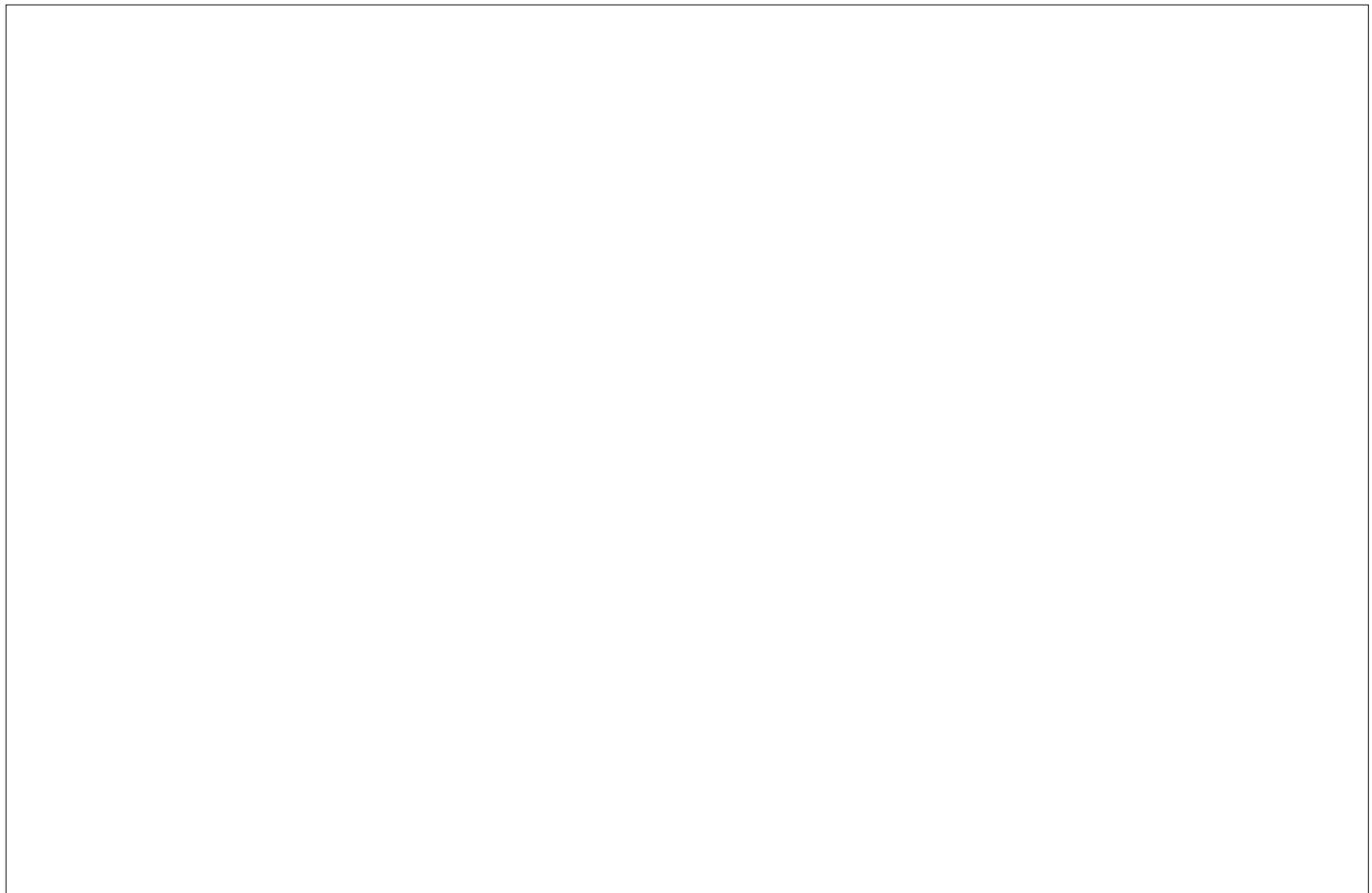
Plan for Stan

Write your answers in the spaces below.

1. Planner's name: _____

2. Level name: _____

3. What is the written plan for how to help Awbie and Mo complete the level?



Journal Notes:

Plan for Stan (Cont.)

4. Builder's name: _____

5. Circle your answer: Did the planner's **pseudocode** work? YES NO

If your answer is no, write corrections to the plan that will make it successful.

6. Circle the phrase to complete the sentence:

The pseudocode was **different from / similar to / the same as** the plan I made.

7. Why is having a pseudocode useful?

Name _____

Journal Notes:

Taking Turns

Strategies help people ensure that tasks are accomplished. In the boxes below, explain or draw your answers.

1. Which of the Coding blocks works as a **delay function** in *Coding Duo*?

2. What can cause a **random** outcome?

Journal Notes:

Taking Turns (*Cont.*)

3. Why were Mo and Awbie unable to complete the level when their separate programs were run together?

Mo and Awbie couldn't complete the level because _____

4. What was your **strategy** to help Mo and Awbie move past the trees?

Name _____

Journal Notes:

Saving Blocks

Write your answers in the spaces below.

1. What is an example of a **variable** that you have used in real life?

A variable I have used in real life is _____

2. How many Coding blocks did Awbie's first code use? _____

3. How many Coding blocks did Mo's first code use? _____

4. How many Coding blocks did Awbie's final code use? _____

5. How many Coding blocks did Mo's final code use? _____

Journal Notes:

Saving Blocks (*Cont.*)

6. Why was the number of Coding blocks different in the first codes and the final codes?

7. Why are **subroutines** useful when coding?

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