Curriculum Outline

5 Courses of 36 Missions totalling about 88 hours of study

The ACG Curriculum Consists of 5 Courses

3 Block Coding Courses

2 JavaScript Courses

Block Coding

ACG's 3 Block Coding Courses consist of 24 Missions that teach students to apply various concepts including "sequence" and "repetition".

Our patented OOBC (object-oriented block coding) is uniquely structured to familiarize students with text coding, helping them transition to the next level of writing code.

Course 1: Block Coding Elementary

Target Age 6 ~ 10

Learning Time
295 min. / about 5 hours

5 Missions

Mission 1

Off to Space We Go

Space adventure for beginners.

- Event, Sequence
- Astronomy
- Industry, Innovation and Infrastructure

Mission 2

Avoid the Obstacles

Intruders from the graveyard orbit. What is their identity?

- Event, Sequence, Coordinate
- Astronomy
- Climate Action

Mission 3

Hungry Recycle Robot

The giant robot that can eat up recyclable trash!

- Event, Sequence, Variable
- Technology
- Responsible consumption and production

Mission 4

Trouble in the Little Garden

Find out what caused the roses to become sick!

- Event, Variable, Coordinate
- Biology
- Life on Land

Mission 5

More Trouble in the Little Garden

Where's the ladybug?

Event, Variable, Coordinate, Physics
Biology
Life on land

Course 2: Block Coding Basic

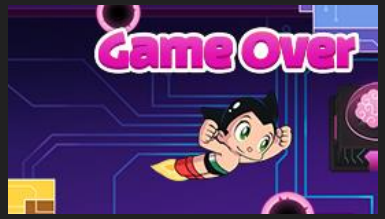
Target Age 8 ~ 11

Learning Time
1,710 min. / about 28.5 hours

13 Missions

Mission 1

Find OT2



Team Astro goes inside the computer to save OT2.

- Event, coordinate, variable
- Technology Engineering
- Industry, Innovation and Infrastructure

Mission 2

Rescue OT2

Rescue OT2 before it's too late!

- Event, Sequence, Speed
- Engineering
- Industry, Innovation and Infrastructure

Mission 3

Save the Turtles

Team Astro, save the endangered sea turtles!

- Event, Sequence, Physics
- Biology
- Life Below Water

Mission 4

Hailstorm Alert

The plane might crash due to a hailstorm!

- Event, Sequence, Coordinate, Physics
- Climatology
- Partnerships for the Goals

Mission 5

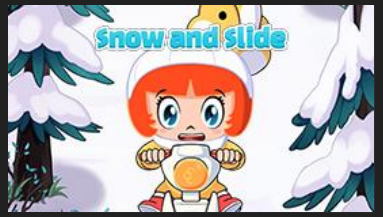
Save the Submarine

How will Astro lift up a marine probe has sunk?

- Event, Variable, Sequence, Coordinate
- Astronomy
- Industry, Innovation and Infrastructure

Mission 6

Snow and Slide



An avalanche has occurred at the top of a mountain!

- Sequence, Event, Variable, Frame
- Climatology
- Industry, Innovation and Infrastructure

Mission 7

Stormy Night

Thunder and lightning in the mountains. The lamas are in danger!

- Event, Variable, Sequence
- Climatology
- Partnerships for the Goals

Mission 8

Torando Watch

Everyone will be in danger if the tornado isn't taken care of!

- Event, Variable, Sequence
- Climatology
- Partnerships for the Goals

Mission 9

Rescue the Penguin

After the glacier collapsed, the penguins are lost!

- Event, Variable, Physics
- Biology
- Climate Action

Mission 10

Astro Kitty and the Sinkhole

It's a sinkhole! Will Astro Kitty be able to find a way out?

- Event, Coordinate, Sequence
- Geology
- Decent Work and Economic Growth

Mission 11

Escape the Sinkhole

The exit is nowhere to be found. Perhaps the key is inside the yarn!

- Event, Array, Coordinate
- Geology
- Decent Work and Economic Growth

Mission 12

Antimatter Device Mishap

Let's throw the antimatter thruster into outer space!

- Event, sequence, physics, variable
- Engineering
- Industry, Innovation and Infrastructure

Mission 13

Halt the Train

The world's fastest train, the Blue Express. It has one flaw... It can't stop!!

Sequence, Event, Speed, Variable, If Statement

Physics

Industry, Innovation and Infrastructure

Course 3: Block Coding Advanced

Target Age 9 ~ 12

Learning Time
1,085 min. / about 18 hours

6 Missions

Mission 1

Cast Away

Suzu fell onto a deserted island. She needs to escape!

- if /else Statement, Variable
- Chemistry
- Industry, Innovation and Infrastructure

Mission 2

Off to Termite Kingdom

Astro Kitty is the king of the termite kingdom!

- Event, Sequence, Physics
- Biology
- Life on Land

Mission 3

Avoid the Soldier Termite

There are ferocious soldiers around the queen!

- Event, if Statement, sequence
- Biology
- Life on Land

Mission 4

Fungi Everywhere

An ancient fungus has swallowed Dr. Blunt! How will Team Astro escape?

- Operator, if Statement, Variable
- Biology
- Life on Land

Mission 5

Plasma Storm Inbound

The sun's plasma is about to hit the spaceship!

- Variable, Clone, Coordinate, Event
- Physics
- Partnerships for the Goals

Mission 6

Deflect the Plasma Blasts

The plasma is right in front of us. What is Astro's solution?

- Loop statement
- Physics
- Partnerships for the Goals

Block Coding Overview

Course	CSTA	Mission	IT	STEM	SDG
Elementary	1A-AP-09 1A-AP-10	Off to Space We Go	Event, sequence	Astronomy - Planets and space development	Goal 9. Industry, Innovation and Infrastructure
		Avoid the Obstacles	Sequence, event, coordinate	Astronomy - Formation of the stars Technology - The role of satellites	Goal 13. Climate Action
		Hungry Recycle Robot	Sequence, event, variable	Technology - Recycling	Goal 12. Responsible consumption and production
		Trouble in the Little Garden	Event, coordinate, variable	Biology - Insect ecology	Goal 15. Life on Land
		More Trouble in the Little Garden	Event, coordinate, physics, variable	Biology - Insect ecology	Goal 15. Life on Land
Basic	1A-AP-11 1A-AP-12	Find OT2	Event, coordinate, variable	Engineering - Computers and viruses	Goal 9. Industry, Innovation and Infrastructure
		Rescue OT2	Event, sequence, speed	Engineering - Computers and viruses	Goal 9. Industry, Innovation and Infrastructure
		Save the Turtles	Event, sequence, physics	Biology - Ocean ecology	Goal 14. Life Below Water
		Hailstorm Alert	Event, sequence, coordinate, physics	Climatology - How hail is formed	Goal 17. Partnerships for the Goals
		Save the Submarine	Event, variable, sequence, coordinate	Chemistry - Changes in the properties of water according to heat	Goal 8. Decent Work and Economic Growth
		Snow and Slide	Sequence, event, variable, frame	Climatology - How an avalanche occurs	Goal 9. Industry, Innovation and Infrastructure
		Stormy Night	Event, variable, sequence	Climatology - How lightning is created Engineering - Conductors and nonconductors	Goal 17. Partnerships for the Goals
		Torando Watch	Event, variable, sequence	Climatology - How a tornado is formed	Goal 17. Partnerships for the Goals
		Rescue the Penguin	Event, variable, physics	Biology - Polar ecosystem	Goal 13. Climate Action
		Astro Kitty and the Sinkhole	Event, coordinate, sequence	Geology - How sinkholes are formed	Goal 8. Decent Work and Economic Growth
		Escape the Sinkhole	Event, array, coordinate	Geology - How sinkholes are formed	Goal 8. Decent Work and Economic Growth
		Antimatter Device Mishap	Event, sequence, physics, variable	Engineering - The principles and roles of a cooling system	Goal 9. Industry, Innovation and Infrastructure
		Halt the Train	Sequence, event, speed, variable, if conditions	Math - Arithmetics Physics - Momentum and velocity	Goal 9. Industry, Innovation and Infrastructure
Advanced	1B-AP-09 1B--AP-10 1B-AP-11	Cast Away	if ~ else conditions, variable	Chemistry - The movement of the air depending on the temperature	Goal 9. Industry, Innovation and Infrastructure
		Off to Termite Kingdom	Event, sequence, physics	Biology - Termite ecology	Goal 15. Life on Land
		Avoid the Soldier Termite	Event, if conditions, sequence	Biology - Termite ecology	Goal 15. Life on Land
		Fungi Everywhere	comparison operator, event, if conditional statement, variable	Biology - Fungal ecology	Goal 15. Life on Land
		Plasma Storm Inbound	Variable, duplicate, coordinate, event	Physics - Plasma and magnetic fields	Goal 17. Partnerships for the Goals
		Deflect the Plasma Blasts	Loop statements	Physics - Plasma and magnetic fields	Goal 17. Partnerships for the Goals

JavaScript

ACG's 2 JavaScript Courses consist of 12 different Missions that teach students advanced concepts such as "functions" and "arrays".

With the help of ACG's auto-fill feature, students who may be new to text coding can easily select the desired command to input.

Course 4: JavaScript Advanced

Target Age 10 ~ 13

Learning Time
1,600 min. / about 26.5 hours

8 Missions

Mission 1

Bobo's Not Pleased

A gorilla kidnapped a child?!

- Event, Sequence
- Astronomy
- Industry, Innovation and Infrastructure

Mission 2

Into the Ocean

What has happened to the coral reef?

- Coordinate
- Biology
- Life Below Water

Mission 3

Approaching Sandstorm

A sandstorm is sweeping over the city!

- Event, Coordinate, Random number
- Climatology
- Climate Action

Mission 4

Paleozoeic Nightmare

An island ruled by insects?

- Event, coordinate, if Statmenet, variable
- Biology
- Life on Land

Mission 5

Disable the Frequency Emittee

What is the machine that is tormenting the whale?

- Variable, if /else Statement, vent
- Astronomy
- Industry, Innovation and Infrastructure

Mission 6

Damaged Satellite

Team Astro faces an unprecedented crisis trying to make repairs!

- Variable, if/ else Statement, Operator
- Technology
- Climate Action

Mission 7

Poision Mountain Analysis

So many withered leaves... What happened on this mountain?

- if Statement, variable, Operator, Event
- Chemistry
- Responsible consumption and production

Mission 8

Poison Mountain Restoration

A giant explosion is imminent! Astro has a powerful secret weapon.

- Global variable, if Statement, Operator
- Chemistry
- Responsible consumption and production

Course 5: JavaScript Mastery

Target Age 10 ~ 13

Learning Time
610 min. / about 10 hours

4 Missions

Mission 1

Garbage Island

Clean the ocean before the turtles swallow the trash in the sea.

- Function
- Biology
- Life Below Water

Mission 2

OT2's Advice

OT2 presents today's health advice.

- Variable, Array, Random number
- Technology
- Industry, Innovation and Infrastructure

Mission 3

OT2's Naming Algorithm

Dr. Serene has created a new flower. What's the name?

- Variable, Array, Random number
- Technology
- Industry, Innovation and Infrastructure

Mission 4

Volcanic Nightmare

The world is engulfed in flames. Keep everyone safe!

- Function, Clone, if Statement, Variable, Operator
- Geology
- Partnerships for the Goals

JavaScript Overview

Course	CSTA	Mission	IT	STEM	SDG
Advanced	1B- AP- 11 2-AP-11	Bobo's Not Pleased	Event, coordinate, sequence	Biology - Habits of the mountain gorilla	Goal 15. Life on Land
		Into the Ocean	Event, coordinate, sequence	Biology - Coral Reef ecology	Goal 14. Life Below Water
		Approaching Sandstorm	Event, coordinate, random number	Climatology - How sandstorms are formed Engineering - Solving problems through a scientific approach	Goal 13. Climate Action
		Paleozoeic Nightmare	Event, coordinate, random number, if conditional statement, variable	Biology - Paleozoic climate	Goal 15. Life on Land
		Disable the Frequency Emittee	Variable, if ~ else conditional statement, event	Biology - Animals using ultrasound	Goal 14. Life Below Water
		Damaged Satellite	Variable, if ~ else conditional statement, arithmetic operator, event	Technology - Role of satellites	Goal 13. Climate Action
		Poision Mountain Analysis	Conditional statement, variable, arithmetic operator, event	Chemistry - Flame reactions to metal elements	Goal 12. Responsible consumption and production
		Poison Mountain Restoration	Global variable, conditional statement, arithmetic operator, event	Chemistry - Flame reactions to metal elements	Goal 12. Responsible consumption and production
Mastery	1B-AP-12 2-AP-12 3-AP-14	Garbage Island	Function	Biology - Impact of marine pollution on the ecosystem	Goal 14. Life Below Water
		OT2's Advice	Variable, array, random number	Technology - Artificial intelligence	Goal 9. Industry, Innovation and Infrastructure
		OT2's Naming Algorithm	Variable, array, random number	Technology - Plant engineering	Goal 9. Industry, Innovation and Infrastructure
		Volcanic Nightmare	Function, cloning, if conditional statement, variable, operator	Geology - Volcanic activity	Goal 17. Partnerships for the Goals