sphero mini

ACTIVITY CARDS

Each card is labeled with the programming type (Draw or Blocks) to help you and your students understand the level of programming required to complete the activities.

DRAW

BLOCKS

As you work through the activities on the cards, we recommend the following:

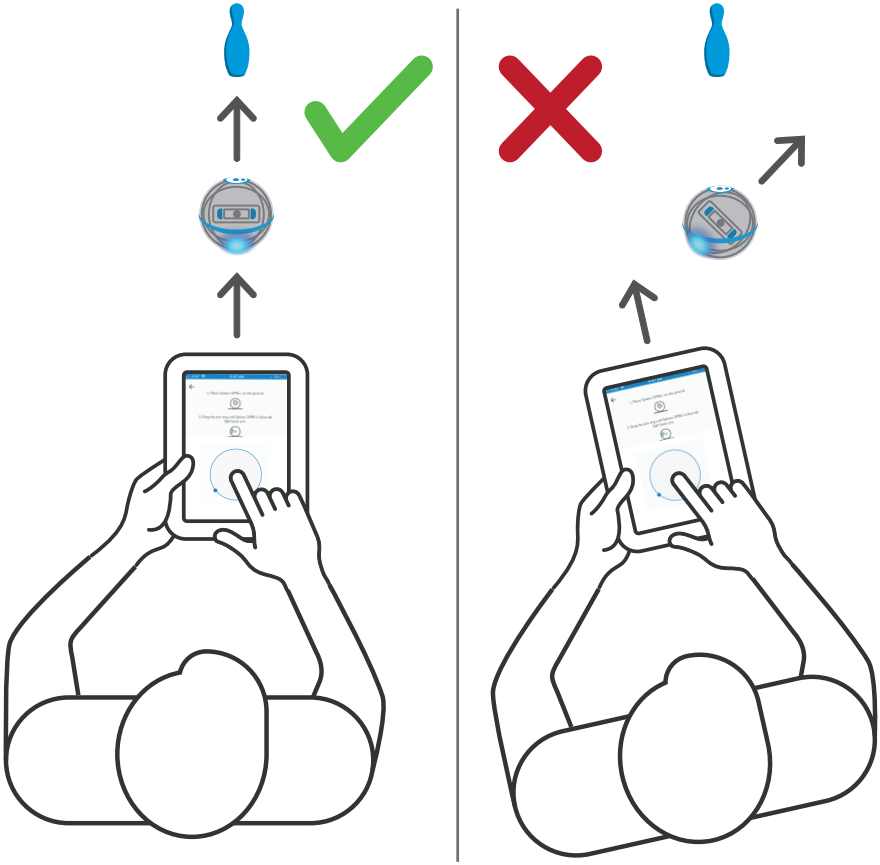
- Have students work in groups of two or more to complete activities.
- Each group needs one programming device, one Activity Card, Construction Set pieces, Pins and Cones, one Robotic Ball Cover, and one Sphero Mini.
- Have students share their solutions with the class when possible.
- Use the QR code scanner in the Sphero Edu app to scan the QR code on the front of each card to load the appropriate code in the app.
- Each card has more than one solution. See how many different ways students can solve each activity.
- When using multiple Roll blocks, use a Delay block in between each Roll block to help with accuracy.

THE AIM GAME

1.0

Aim your robot so it goes where you want it to go.

GETTING STARTED



Scan in the Sphero Edu app

IMPORTANT

Re-aim your robot periodically or if it's not going where you want it to go.

THE AIM GAME

1. Set up a Pin and stand behind your robot.

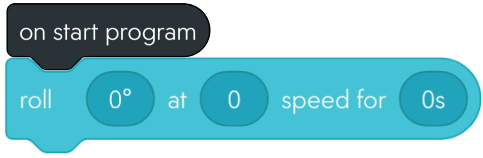
2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Mini has a front and back. The blue light on Mini tells which way it's facing. The blue light should always be in the back, facing you

4. Press and spin the dot in the app until the light on Mini is in the back, facing you. Congrats! Your robot is properly aimed.

5. Use Roll block with a heading of 0. Press Start and knock over Pin.

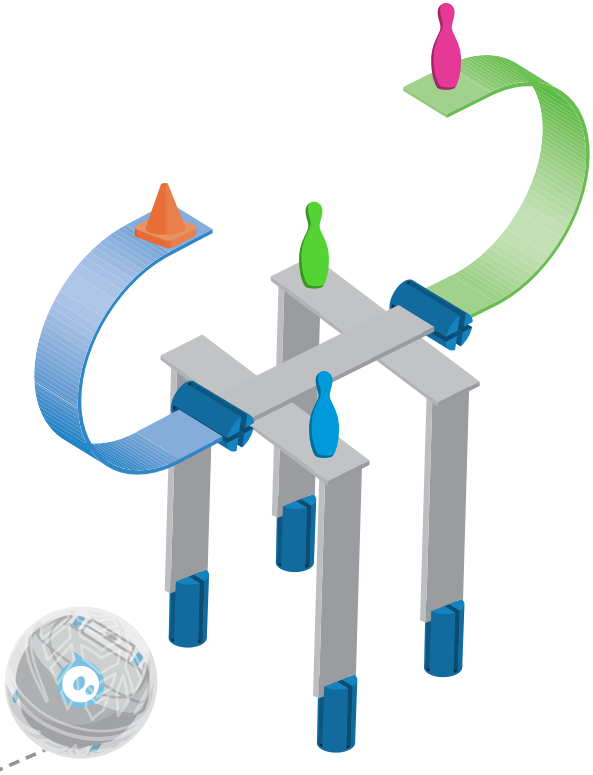


BATTERING RAM

1.1

Topple the Pins and Cones off of your tall tower.

S.T.E.A.M.
SCIENCE



Scan in the Sphero Edu app

Draw

BATTERING RAM

1. Set up a tower with Pins and Cones and add the Robotic Ball Cover.

2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Use the Draw Canvas to program Mini to knock the Cones and Pins off of the tower.

4. Change the speed to see if you can alter how many Cones and Pins are knocked down at once.

Hint: Change your speed by opening the wheel in the bottom left corner of the Draw Canvas.

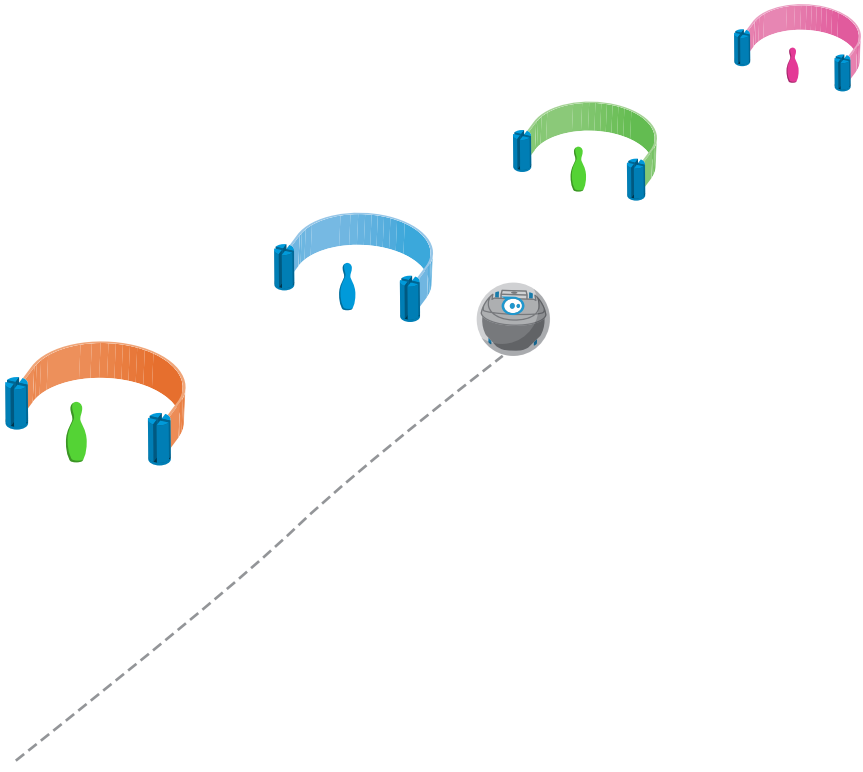
5. Now rebuild your structure so Mini *cannot* knock down the Cones and Pins.

ARCHIE BALL

1.2

Roll your tiny robot into the Arches to score big.

S.T.E.A.M.
SCIENCE



Scan in the Sphero Edu app

Block

ARCHIE BALL

1. Set up items as pictured on the front of the card.

2. Tap the aim icon in the app.

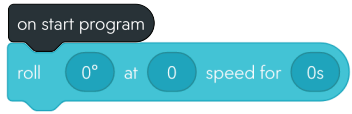
Hint: Aim icon is at the top right of the coding screen.

3. Place Mini on the floor and use the Roll block try to get Mini inside the Arches.

Hint: Mark the spot where Mini starts.

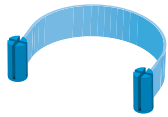
4. Return Mini to the same spot and try again.

5. Change the heading, speed and duration based on the Arch you are aiming for.

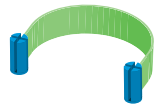


6. Take turns with a partner and keep score.

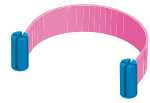
10pts



20pts



50pts



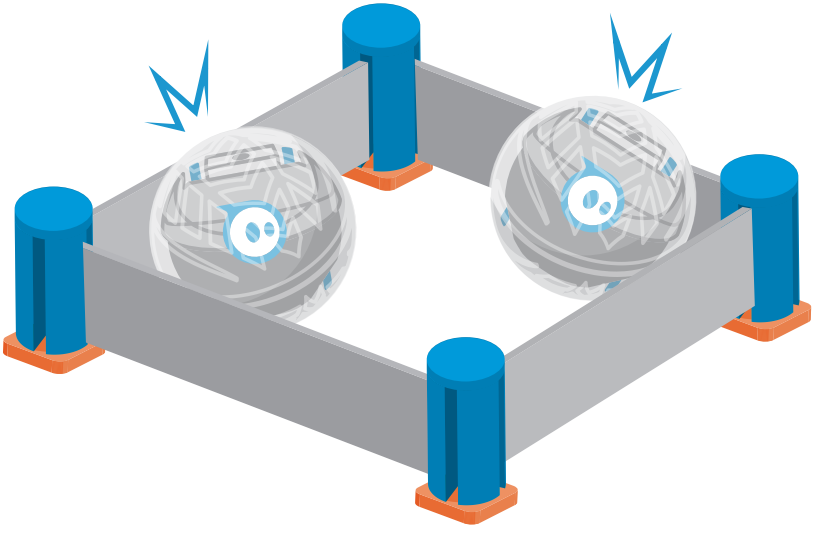
100pts

BALLECULES

Let's make Mini mimic many molecules.

1.3

S.T.E.A.M.
SCIENCE



Scan in the
Sphero Edu app

Block

BALLECULES

Molecules move at different speeds depending on whether the element is a solid, liquid or gas.

1. Set up items as pictured and add the Robotic Ball Cover.

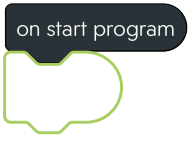
Hint: Put Cones in the Connectors for grip on a hard surface.

2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Place 2-3 Minis inside the square to represent molecules.

4. Move one of the green Function blocks under On Start Program and press Start.



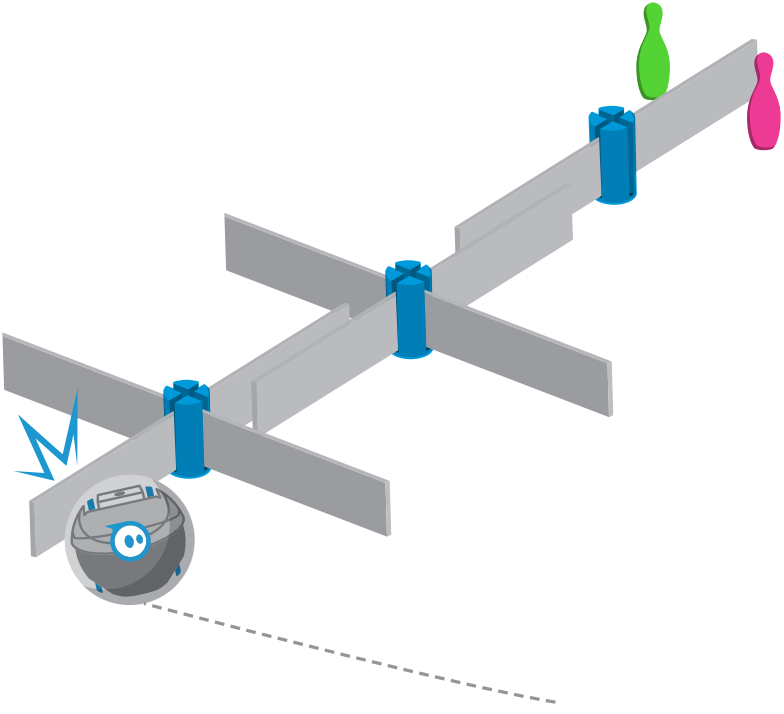
5. What differences do you notice in how the Minis behave?

SHIFTING GEARS

2.1

Use your problem-solving skills to knock down the Pins.

S.T.E.A.M.
TECHNOLOGY



Scan in the Sphero Edu app

Draw

SHIFTING GEARS

1. Set up your gears as pictured with two Pins at the end.

2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Use the Draw Canvas to get Mini to drive the gears and knock down the Pins.

4. Which way does Mini have to drive in order to knock down the green Pin? The pink Pin?

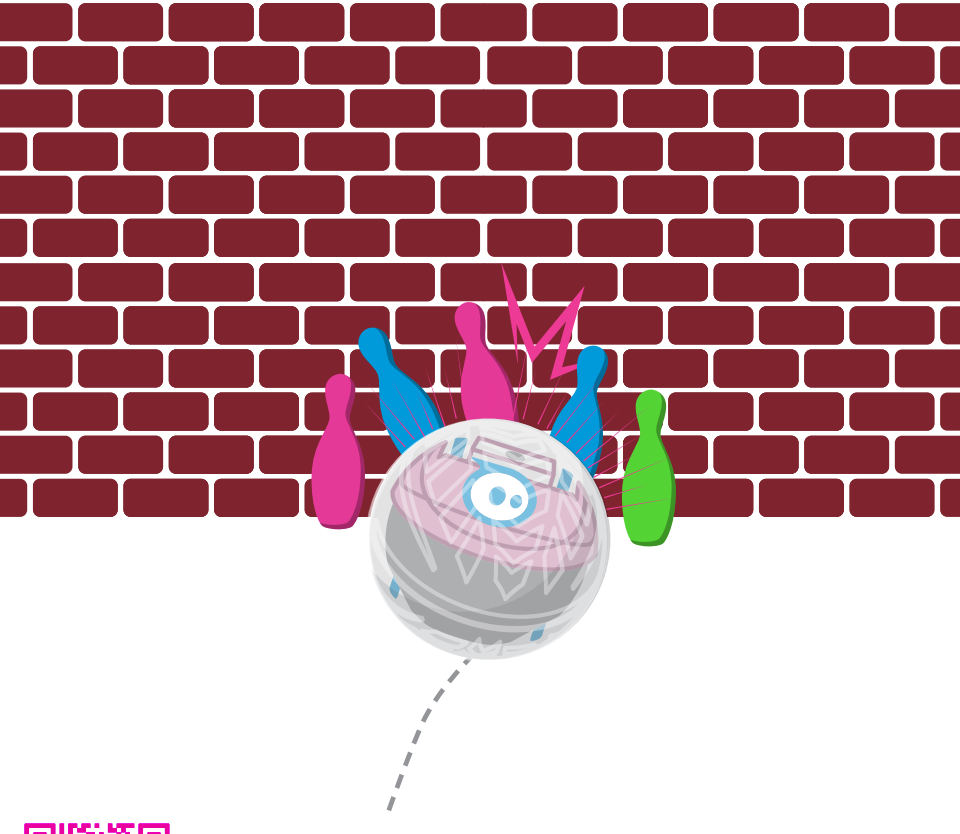
5. Can you use the Draw Canvas to knock down both Pins?

OFF THE WALL

2.2

Program Mini to react to a collision.

S.T.E.A.M.
TECHNOLOGY



Scan in the
Sphero Edu app

Block

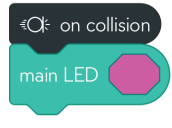
OFF THE WALL

1. Set up items along a wall or in front of a book and add the Robotic Ball Cover.

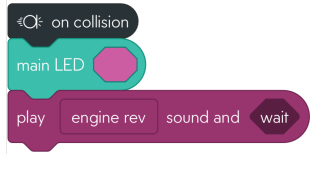
2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. As you roll Mini into an object like a wall or textbook, you can change the Main LED using an On Collision event.



4. Now add a sound effect using a Sound block.



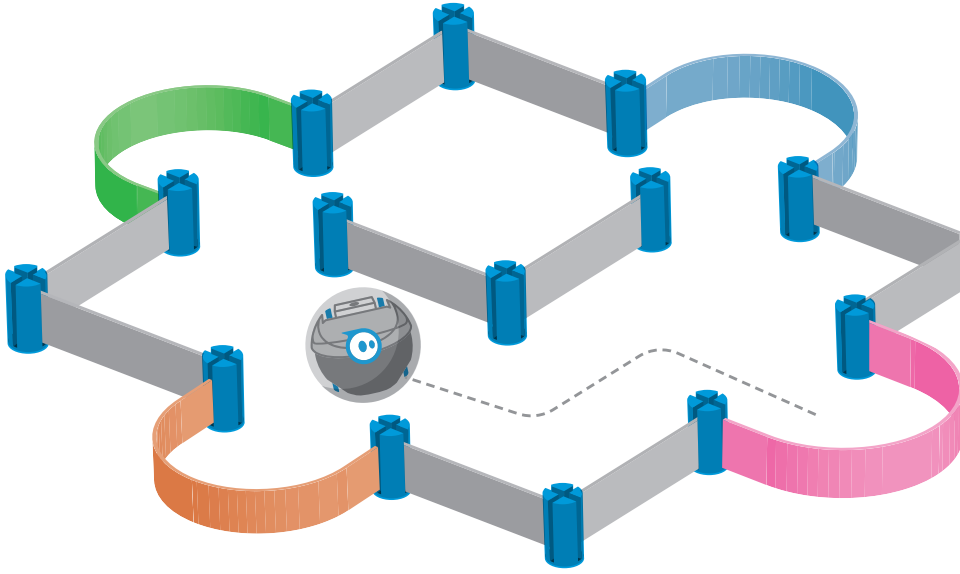
5. Place the Pins along the Rail. Can you hit the Pins and make Mini make a sound at the same time?

AROUND THE BLOCK

2.3

Roll Mini from Arch to Arch as efficiently as possible.

S.T.E.A.M.
TECHNOLOGY



Scan in the Sphero Edu app

Block

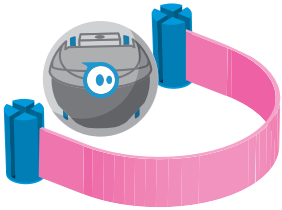
AROUND THE BLOCK

1. Set up the Rails and Arches.

2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Place Mini inside one of the Arches.



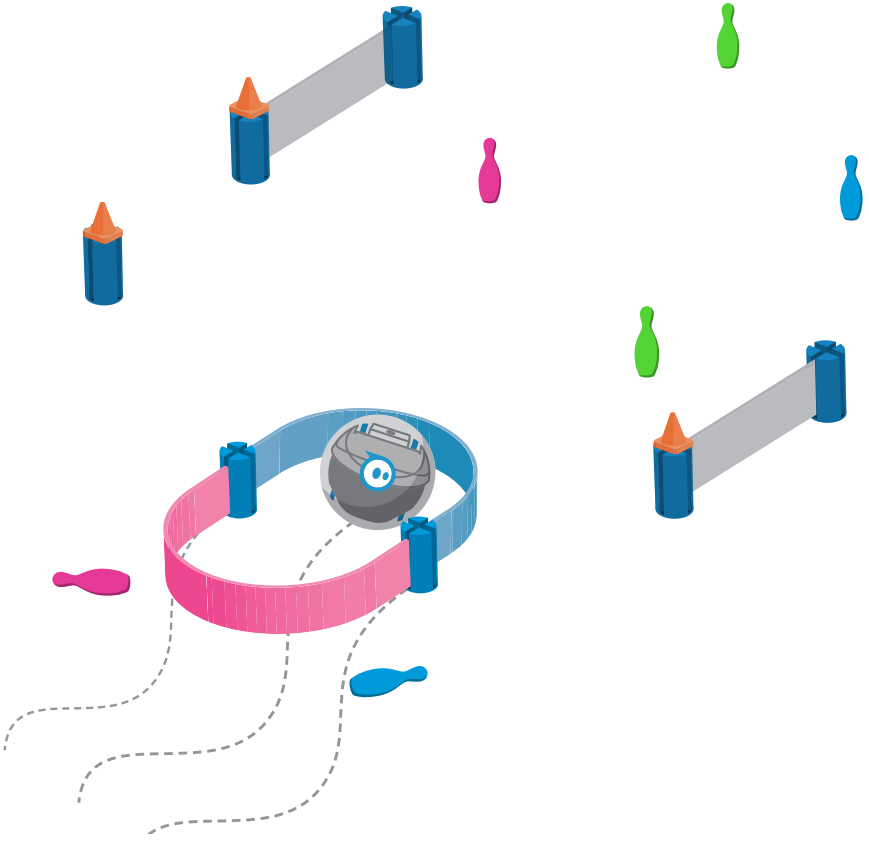
4. Using the fewest number of blocks possible, move Mini into each Arch.

STREET CLEANER

3.1

Turn Mini into a Pin pushing, road clearing machine.

S.T.E.A.M.
ENGINEERING



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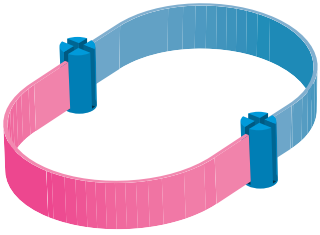
Draw

STREET CLEANER

1. Connect two Arches horizontally and place your Mini inside.



2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

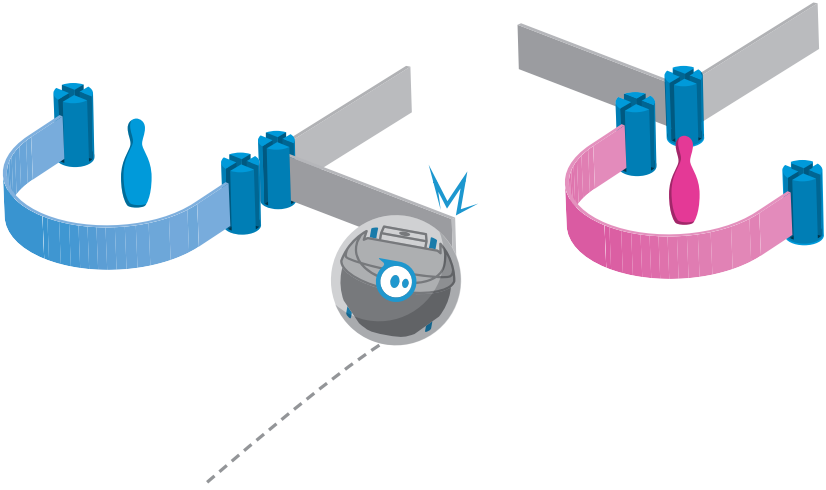
3. Use the Draw Canvas to knock over all of the Pins.

SAVE THE CAT

Close the gate so the cat can't escape.

3.2

S.T.E.A.M.
ENGINEERING



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Sphero Edu app

Block

SAVE THE CAT

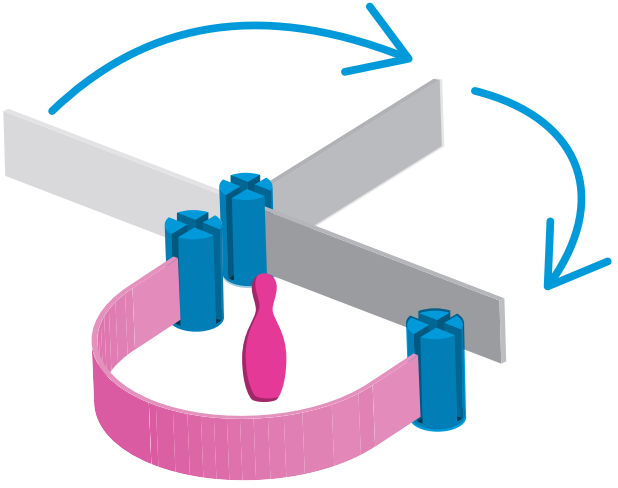
1. Set up items as pictured on the front of the card.

2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Use the attached Block code to get Mini to close the Pins inside the gates.

Hint: Aim Mini so it makes contact with the gate far away from the pivot point.

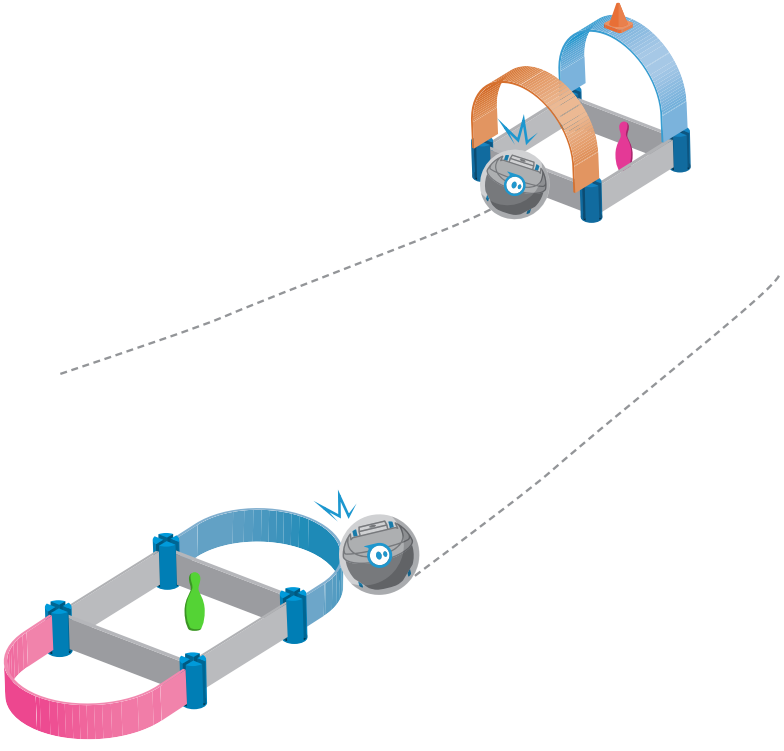


CAPTURE THE FLAG

3.3

Protect your Pin while trying to knock down your opponent's Pin.

S.T.E.A.M.
ENGINEERING



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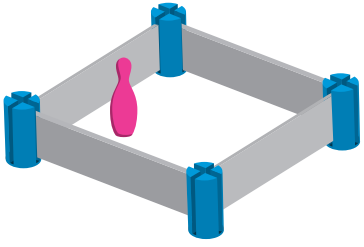
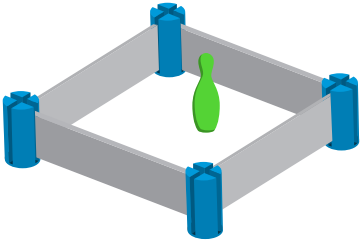
Block

CAPTURE THE FLAG

1. Lay the Rails horizontally and place your Pin inside.





2. Divide up the remaining pieces and build obstacles around your Pin.

3. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

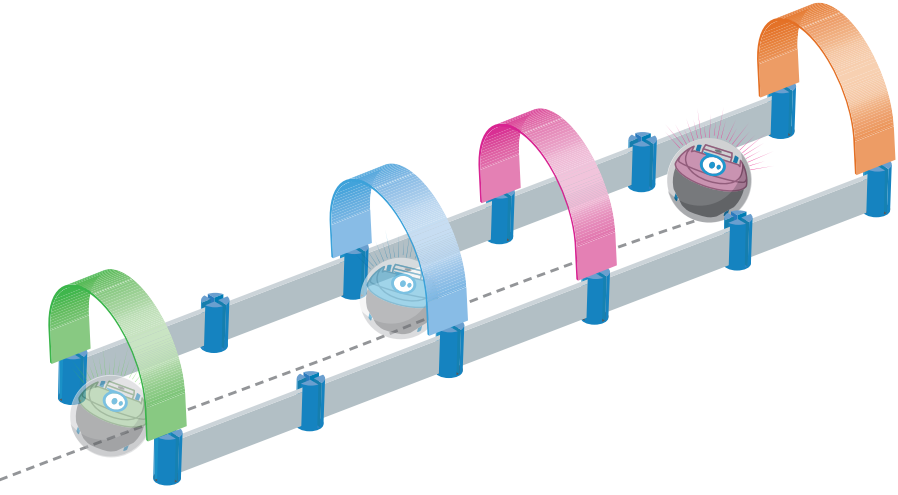
4. Program Mini to knock down your opponent's Pin.

TUNNEL OF FUN

4.1

Drive Mini through a tunnel of Arches.

S.T.E.A.M.
ART



Scan in the Sphero Edu app

Draw

TUNNEL OF FUN

1. Set up items as pictured on the front of the card.

2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Use the Draw Canvas to make the main LED match the Arches of your tunnel.

Hint: Change your LED by opening the wheel in the bottom left corner of the Draw Canvas.

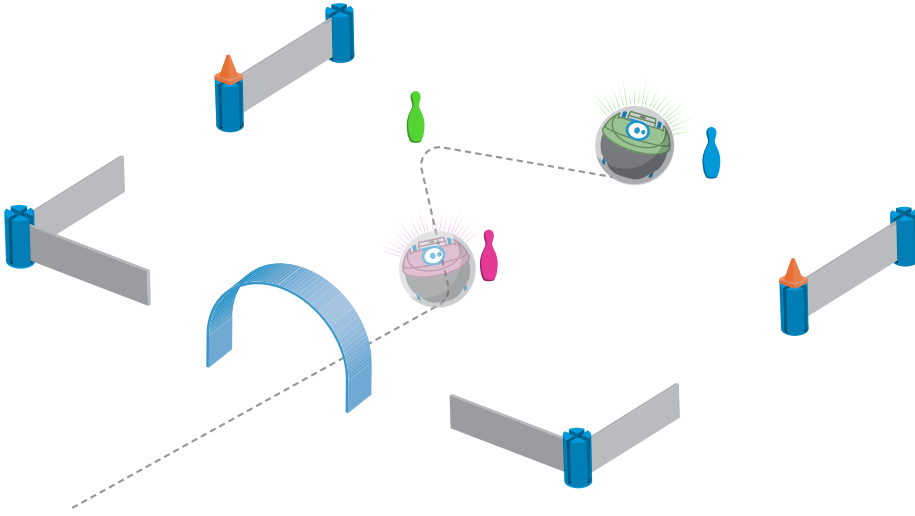
4. Rearrange the Arches and try again.

POP ‘N’ BLOCK

4.2

Dance like robotys watching.

S.T.E.A.M.
ART



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Block

POP 'N' BLOCK

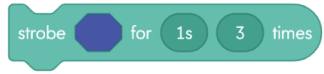
1. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

2. Run the attached code and observe how Mini moves.

3. Use items to arrange a stage so that Mini enters through an Arch. Add Pins as marks for Mini to hit.

3. Add more excitement to the dance by attaching LED blocks to the code.



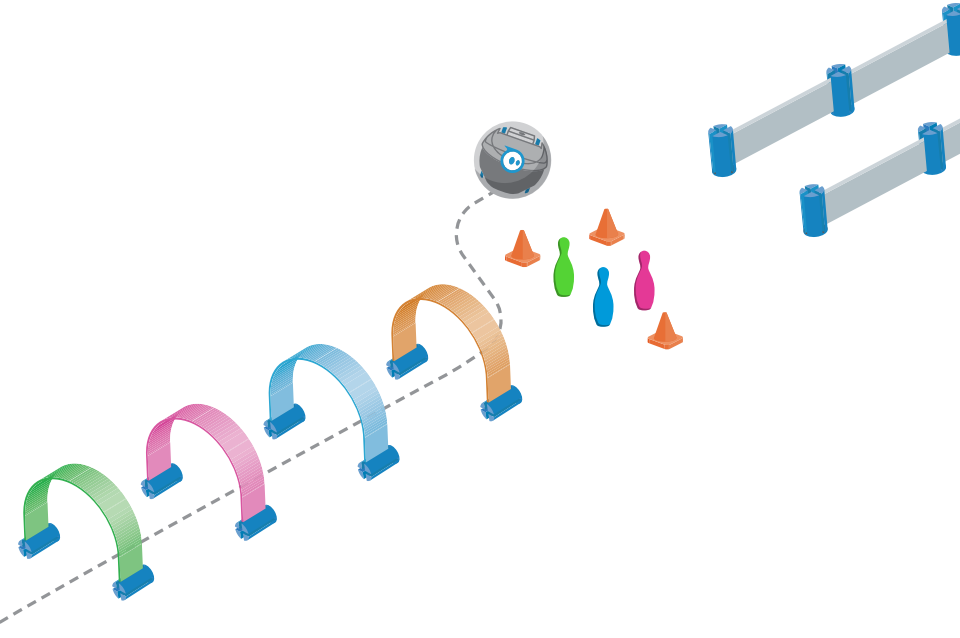
4. Challenge yourself by adjusting directions, speed, or time durations on Roll blocks and choreographing Mini to a different song!

PLOT BOT

Construct a story around the Construction Set.

4.3

S.T.E.A.M.
ART



Scan in the Sphero Edu app

Block

PLOT BOT

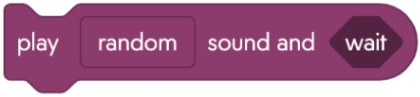
1. Tap the aim icon in the app.

   Hint: Aim icon is at the top right of the coding screen.

2. Run the attached Blocks and observe how Mini moves.

3. Create the tunnel, hazard area, and pathway.

4. Change the story using the Speak blocks and Sound blocks to match the same pathway.



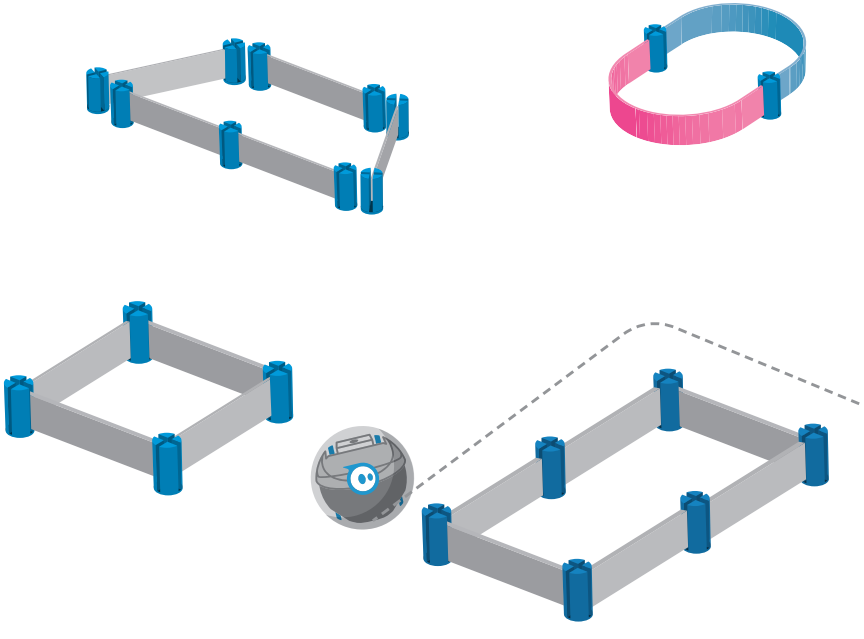
5. Challenge yourself by changing the pathway using the Roll block.

SHAPE SHIFTER

5.1

Make a shape and then make Mini drive around it.

S.T.E.A.M.
MATHEMATICS



Scan in the Sphero Edu app

Block

SHAPE SHIFTER

1. Create different shapes using the Rails, Arches, and Connectors.

2. Identify your shape.

3. Tap the aim icon in the app.

   Hint: Aim icon is at the top right of the coding screen.

4. Modify the Blocks so it rolls around the shape.

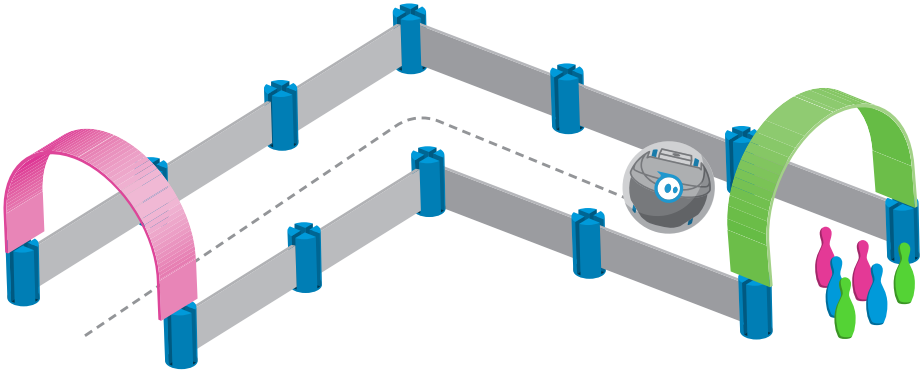
5. Now roll around the inside of the shape.

90 DEGREE BOWLING

5.2

Discover the right way to bowl a right angle strike.

S.T.E.A.M.
MATHEMATICS



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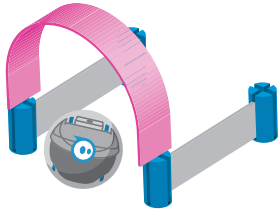
Sphero Edu app

Block

90 DEGREE BOWLING

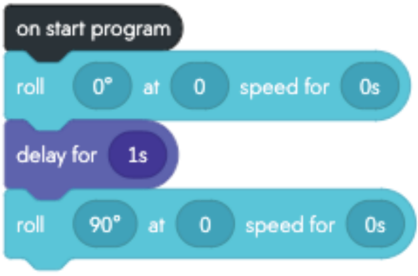
1. Set up items as pictured on the front of the card and start with Mini under the Arch.



2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Using the attached Blocks code, change the speed and duration of the two Roll blocks to knock down all the Pins.

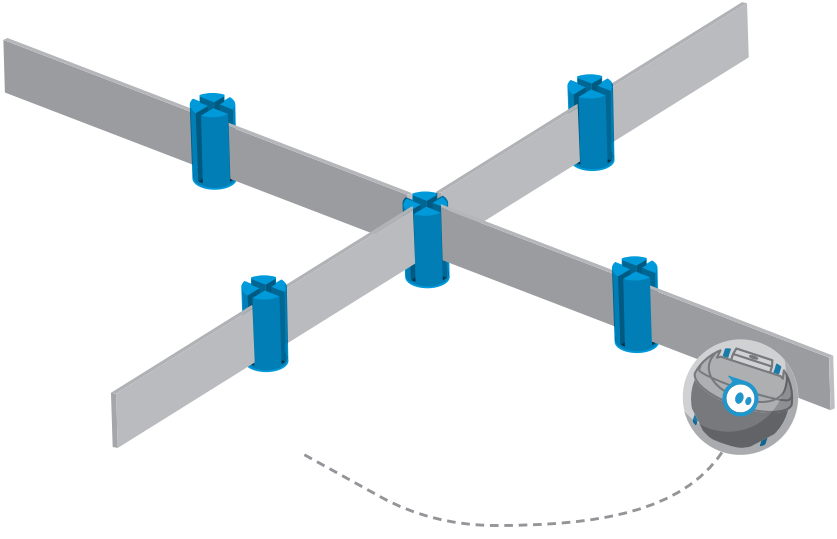


4. Can you change the course to make it more difficult?

SPIN THE WINDMILL 5.3

Teach Mini to turn this turbine.

S.T.E.A.M.
MATHEMATICS



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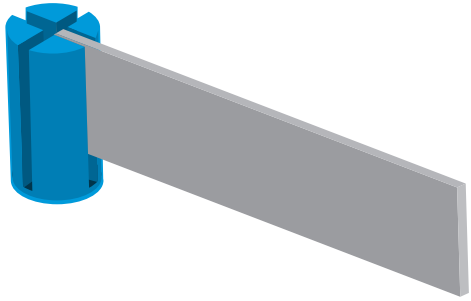
Sphero Edu app

Draw

SPIN THE WINDMILL

1. Set up the Rails to make a windmill.

Hint: Don't push the Rails all the way into the connectors.



2. Tap the aim icon in the app.

Hint: Aim icon is at the top right of the coding screen.

3. Using the Draw Canvas, program Mini to spin the windmill.