

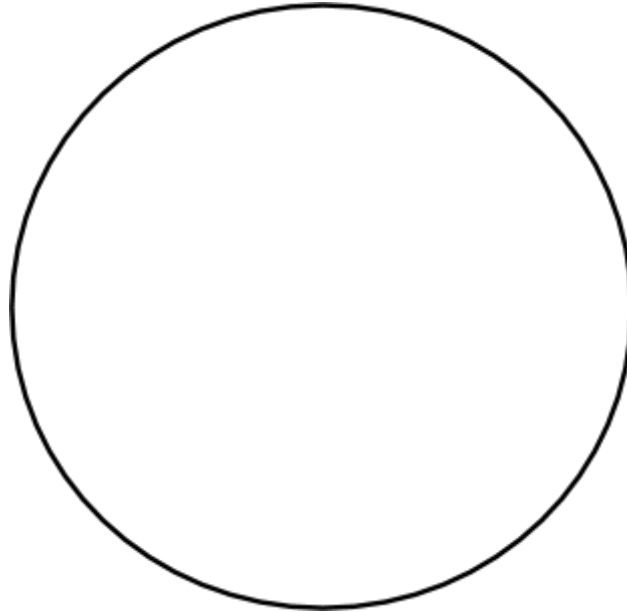
Warm Up - “Scientific Investigation”

Record your observations, predictions and the results in the chart below.

Observation	Prediction (Test it!)	Result
1. <i>From the amount of brightness, I think that it's daytime in England.</i>	<i>I predict it's also daytime in Spain</i>	<i>If it's daytime in England it's also daytime in Spain</i>
2.		
3.		

Mini-lesson

Draw and label an model of the human eye below.



Keyword Review

Draw a line to match each keyword to its definition.

Keyword
Lens
Retina
Pupil
Color blindness

Definition
Retina is faulty and cannot detect red, green and blue accurately
Focuses light onto retina
Receives the light and sends message to the brain so we can see
Small hole at the front of the eye that lets the light in

Let's Discuss

In complete sentences, describe one way light and shadows help us in our everyday life.

Challenge 1

Record your observations, predictions and the results in the chart below.

Observation	Prediction (Test it!)	Result
1. <i>The yellow light casts the most obvious shadow</i>	<i>The predict the blue light will cast a less obvious shadow.</i>	

2. The Red Light...	<i>Based on the red light, I predict the green light...</i>	
3. The Green Light...		
4. The Blue Light...		

We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your results.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
first/second/third	also	but	because
next	equally	however	so
after	likewise	otherwise	therefore
then	in addition	on one hand... ...on the other hand	as a result
finally/overall/to sum up	similarly	opposite	due to

Warm Up - “Do you remember this song?”

Write about the memory you associate with this song. Use complete sentences.

Mini-lesson

Can you put these notations in order?



Sol	La	Fa	Mi	Do	Re	Do (+1)	Ti

Keyword Review

Using the word bank below, choose the best keyword to complete each sentence.

Notes	Music therapy	Melody	Chord	Solfège Scale
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1. Pressing the two keys simultaneously, the keyboard player struck a _____ and let out a melodious sound.
2. Each of the _____ have a distinct sound.
3. _____ is beneficial for any individual, physically and mentally, through improved heart rate, reduced anxiety, stimulation of the brain, and improved learning.¹
4. The _____ is the major scale of 'C' and there are 8 notes which comprise the scale (Do, Re, Mi, Fa, Sol, La, Ti, Do).
6. The _____ was so beautifully arranged, it made her eyes tear.

Let's Discuss

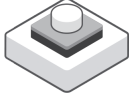


In your workbook or with a partner, record, discuss, or share your favorite song and what memory you associate with it.

¹ https://en.wikipedia.org/wiki/Music_therapy

Challenge 2

Plan your system.

1. What blocks do you need?

	The Button block enables you to turn on or activate a program.
	The Delay block enables you to specify a time in which something will occur.
	The Sound Player block enables you to select and play an audio file. It produces sound when it receives a true signal.

2. Sketch your plan: Think about the SAM system you want to create and use the space below to draw it out.

- *Which are your inputs and outputs?*
- *How will they be connected together?*
- *What settings do you need to edit?*

We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases to discuss the steps you took to compose your song.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
first/second/third	also	but	because
next	equally	however	so
after	likewise	otherwise	therefore
then	in addition	on one hand... ...on the other hand	as a result
finally/overall/to sum up	similarly	opposite	due to

Warm Up - “Odd One Out”

Using the table below, list all requirements you can think of. Highlight any that appear in more than one column.

Frog	Sea Turtle	Lion

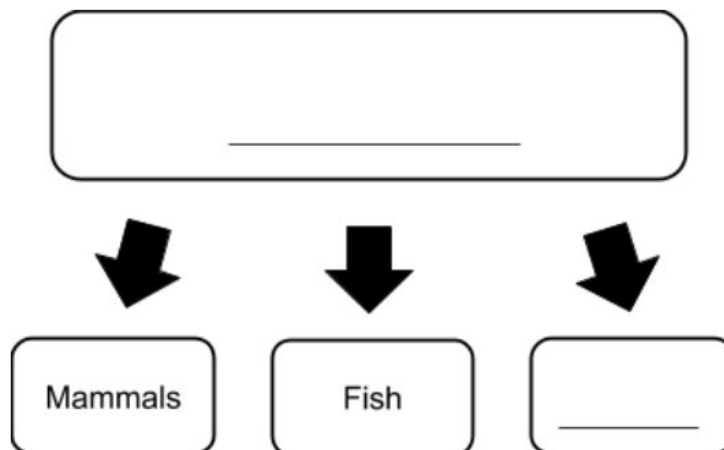
Mini-lesson

Keyword Review

Fill in the blanks with the appropriate keyword using the work bank below.

Ecosystem	Thrive	Reptiles
Class/Classification	Habitat	Need
Saltwater	Freshwater	Elements

1.



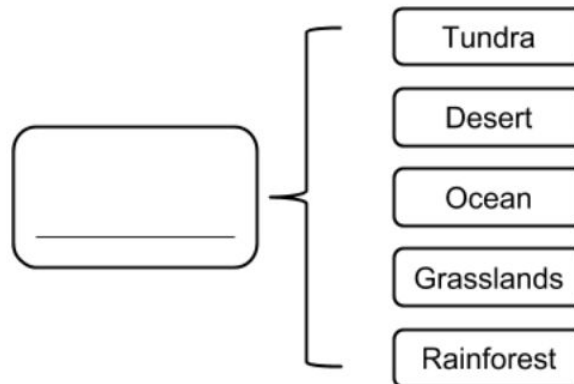
2.



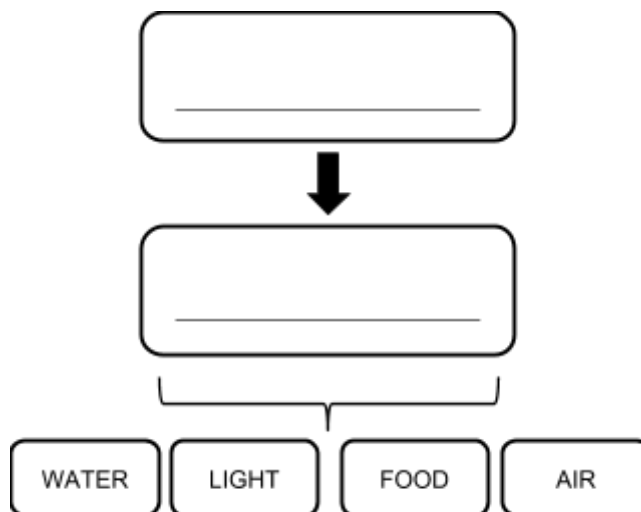
3.

In order to _____, animals _____ water, food, sunlight, and oxygen.

4.



5.


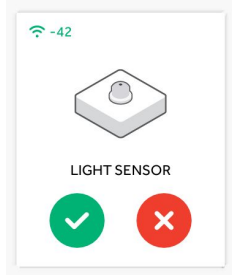
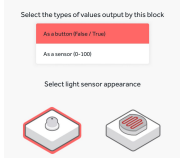
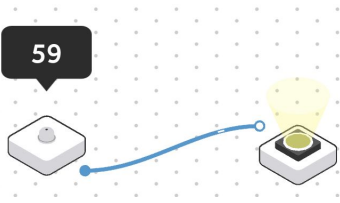


Let's Discuss

In your workbook or with a partner, record, discuss, or share one example of how sea turtles access and use the sunshine and ocean water during their lifecycle.

Worked Example

Look at the pictures and read the steps that describe the Worked Example. What happens first? Second? Third? Write the number of the step to match each picture. Step 1 has been completed for you.

Steps	Instructions	Workspace
	Drag the Light Sensor block and RGB LED onto the workspace.	
Step 1.	Turn on and pair: <ul style="list-style-type: none"> • 1 Light Sensor block • 1 RGB LED block 	
	Open the Settings icon of the Light Sensor and select the button option.	
	Connect the Light Sensor and RGB LED.	

	<p>Test your system. Put your entire palm over the Light Sensor.</p>	
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We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your system.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
first/second/third	also	but	because
next	equally	however	so
after	likewise	otherwise	therefore
then	in addition	on one hand... ...on the other hand	as a result
finally/overall/to sum up	similarly	opposite	due to

Warm Up

Look at the images below and label them smart technology or regular technology.

Mini-lesson

Choose one of these lighting systems. What makes it 'smart'? Write in complete sentences.



Keyword Review

Match the keyword with its definition. 'Consumption' has been completed for you.

Keyword
Smart technology
Sensor
Consumption
Electricity
Dim

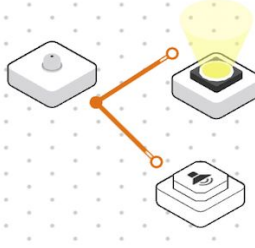

Definition
Capable of adapting automatically, collecting and using information from the environment.
Created by generators and powered by gas, coal, oil, wind or solar.
Not bright or clear
A part of a device that 'detects' the changes in the environment
To use or spend

Let's Discuss

In your workbook or with a partner, record, discuss, or share one example of smart technology and what makes it 'smart'.

Challenge 1

Read the steps that describe Challenge 2. What happens First? Second? Third? Write the number of the step to each picture. Step 1 has been completed for you.

Steps	Instructions	Workspace
	Connect the RGB LED and the Buzzer blocks to the Light Sensor block.	
Step 1.	Turn on and pair: <ul style="list-style-type: none"> • Buzzer/Virtual Buzzer Keep the Light Sensor and RGB LED on the workspace but delete everything else.	

	<p>Test it and try replacing the Buzzer with Sound Player blocks to see if they work interchangeably</p>	
	<p>Drag the On/Off block to the workspace and add it between the Filter and Buzzer blocks.</p>	
	<p>Drag the Filter block onto the workspace and add it between the Light Sensor, RGB LED and Buzzer blocks. Set the Filter range to '0-30'.</p>	

We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your system.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
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Warm Up - "Estimation"

What can the teacher do before school?

On the way to school today the teacher had to make a decision. It was 7:00 am and she only had one hour to get to school. She wanted to stop to get paint and markers for the class. It takes her 20 minutes to drive to school without stopping. She estimates it would add 15 minutes to her trip if she stopped at the paint store and another 16 mins if she stopped for markers.

<p>Does the teacher have time to stop for paint and markers? (Yes/No)</p>	
<p>How do you know? <i>Show your work.</i></p>	

Mini-lesson

What activities can you accomplish in an hour?

- Play soccer with friends (24 min)
- Play a game of go-fish (15 min)
- Ride a bicycle to the park (17 min)
- Walk home (10 minutes)
- Watch a video on the internet (12 min)
- Visit a friend or family (35 min)
- Jump rope with a friend (17 min)
- Listen to a song (5 min)
- Read a book (12 min)

Time's Up!



Review the list of activities above and come up with two ways to complete the maximum number of activities in one hour.

<p>Option 1</p>	
<p>Option 2</p>	

Keyword Review

Using the word bank below, choose the best keyword to complete each sentence.

time	calculate	hour
minute	second	millisecond

“There is no _____ like the present!” she exclaimed. And then used her watch to _____ the amount of time she had remaining. She knew that 60 _____ equal one _____ and that 1000 _____ equal one _____

Let's Discuss

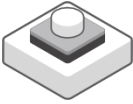




How many minutes and seconds make up an hour? In your workbook or with a partner, record, discuss, or share one of the strategies you used to solve the problem.

Challenge 1

Create a counter with an alert for an addition/subtraction game

Plan your system

1. What blocks do you need?

	<p>The Button or Key Press block act as the input to start the system working</p>
	<p>The Interval block allows the user to set the time from milliseconds to hours as it sets pulses in time</p>
	<p>The Counter block counts up</p>
	<p>The Compare block acts as a question. It looks at whether its condition is the same as the counter before activating the output</p>
	<p>The RGB light acts as the output and the colour of the light can be edited.</p>

2. Sketch your plan

Think about the SAM system you want to create and use the space below to draw it out.

- Which are your inputs and outputs? (Remember inputs on the left connected to your output on the right)
- How will they be connected together?
- What settings do you need to edit?

3. Predict and test settings

Think about what you will set the Compare block to be and the outcome this will have.

Compare Block Setting	Prediction	Outcome
<i>E.g. set to < 3</i>	<i>E.g. the light will be activated when counter less than 3</i>	<i>E.g. this works but when the counter keeps going the light is off</i>

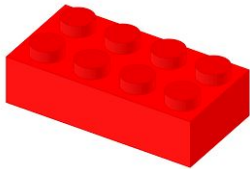
We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your system.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
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Warm Up - 'Build it up'

Some objects are made up of a smaller set of pieces. These objects can be disassembled to create a new object or structure.

How many different objects can you create using these four Lego bricks? Show your work in the space below.



I made _____ different objects using my Lego bricks.

Mini-lesson

Keyword Review

Explain to your partner the meaning of each keyword.

1. Earthquake-proof
2. Rigid
3. Structure

It is better for a building to be made of bricks so it does not move when there is an earthquake.

Do you **agree** or **disagree**?

Write your answer in the space below. Remember to provide a thoughtful reason for your ideas.

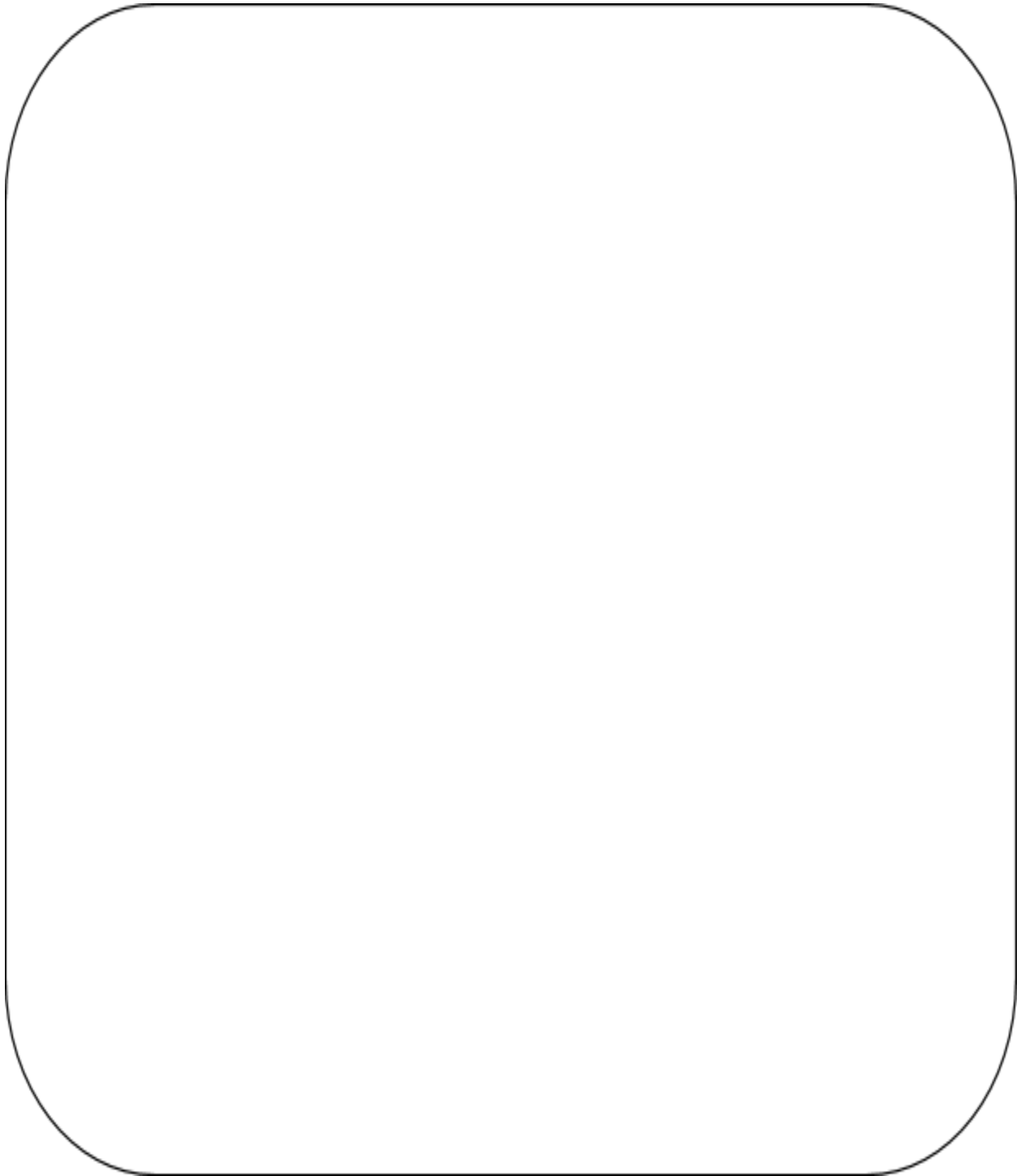
Complete the sentences using the words from the bank below.

Shock waves	Built
Earthquake-proof	Engineers
Rigid	Materials
Disassembled	Damage

Objects made up of a smaller set of pieces can be _____
and _____ into a new object. Scientists and _____
are constantly investigating and researching how to use different
_____ to build new houses which are _____. This
is important as earthquakes produce _____ which can
cause lots of _____. It is important a structure is not too
_____ as it needs to be able to move with the shock waves.

Challenge 1

In the space below, sketch your earthquake-proof building. Consider how you bend and alter materials to create your structure.



Challenge 2

In my construction from Challenge 1, two things that worked well are:

1. _____

2. _____

I want to improve...

We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your system.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
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Warm Up -“Match Up”

Can you identify the ways that different animals disperse seeds?
The first one has been completed for you.



When I eat fruit, only the juice is digested so the stones and pips pass through my digestive system.



I store seeds in my **cheek pouches** and take them elsewhere to bury in the ground.



When I collect nectar and pollen from the flower of a plant, some pollen sticks to the hair of my **fuzzy body**.



As I dip my **bill** into a flower to drink its nectar, sticky pollen sticks to it. I then carry it to the stigmas of similar plants.

Mini-lesson

Have you ever wondered how new oak trees grow?

Some animals such as The Eurasian Red squirrel bury leftover food such as acorns underground so that other animals don't eat them!

However, they often forget where they have buried them.

The acorn contains two seeds which eventually grow to form new oak trees.

Look at the events below and order the sequence by which the Eurasian Red Squirrel disperses seeds. The first one has been completed for you.

The squirrel moves away from the tree.	
The squirrel buries the acorns from its cheek pouches underground.	
The squirrel goes to the acorns and eats some of them.	
The squirrel stores any acorns it doesn't eat in its cheek pouches.	
The seeds from a buried acorn grow to form a new oak tree.	
The squirrel sees some acorns underneath an oak tree.	1

Keyword Review

Fill in the blanks with the appropriate keyword using the word bank below.

Seeds	Acorns	Unwittingly	Dispersal	Oak Tree
--------------	---------------	--------------------	------------------	-----------------

When the Eurasian Red Squirrel goes to find _____, as it moves around it _____ drops some of these acorns and the _____ within the acorn grow into an _____. This process is called _____.

Let's Discuss

In your workbook or with a partner, record, discuss, or share the process by which a Eurasian Red Squirrel disperses seeds. Use the keywords to help you.

Challenge 1

Look at the pictures and read the steps that describe the Worked Example. What happens first? Second? Third? Write the number of the step to match each picture. Step 1 has been completed for you.

Steps	Instructions	Workspace
	<p>Click the settings icon of one of the DC Motors. Set it to 'anti-clockwise'.</p>	
<p>Step 1</p>	<p>Turn on and pair:</p> <ul style="list-style-type: none"> • 1 Slider/Virtual Slider block • 1 Button/Virtual Button block • 2 DC Motors <p>Connect the Slider and Button to both motors.</p>	
	<p>Connect the 2 wheels to the DC Motors and fit them into the yellow Car Chassis. Insert the roller underneath the car. Test your system.</p>	
	<p>Add a Switch Direction block to the workspace. Place it between the Button and the 2 DC Motors. Now, test your system again.</p>	

We can use transitional phrases to talk about the order events or actions that take place.

Use the transitional phrases below to help you plan your dramatization. Remember, you will be presenting this to the rest of the class. Try to include all the detailed steps that make up the process of seed dispersal by the squirrel.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
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Warm Up - Stay Safe

Label each image with the correct heading.
 How do we stay safe when an earthquake occurs?

Hold	Drop	Cover
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Mini-lesson

Keyword Review

Fill in the blanks with the appropriate keyword using the word bank below.

Earthquake	Tectonic Plates	Crust	Warning	Epicentre
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The Earth has an outer layer and this is called the _____ and it is split into lots of pieces called _____. When the tectonic plates collide it causes an _____ and the location where the earthquake starts is called the _____ and without a _____ it can cause mass destruction and devastation.

Let's Discuss

In your workbook or with a partner, record, discuss, or share one idea of how we can warn others when an earthquake starts?

Challenge 1

Look at the pictures and read the steps that describe Challenge 1. What happens first? Second? Third? Write the number of the step to match each picture. Step 1 has been completed for you.

Steps	Instructions	Workspace
	Connect the Sound Player block to the Tilt Sensor.	
	Test your system.	
	Click on the settings icon of the Sound Player block. Set the sound.	

Step 1	Drag on a Sound Player block.	
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We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your system.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
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Warm Up

Identify a **synonym** for the 3 R's of recycling:

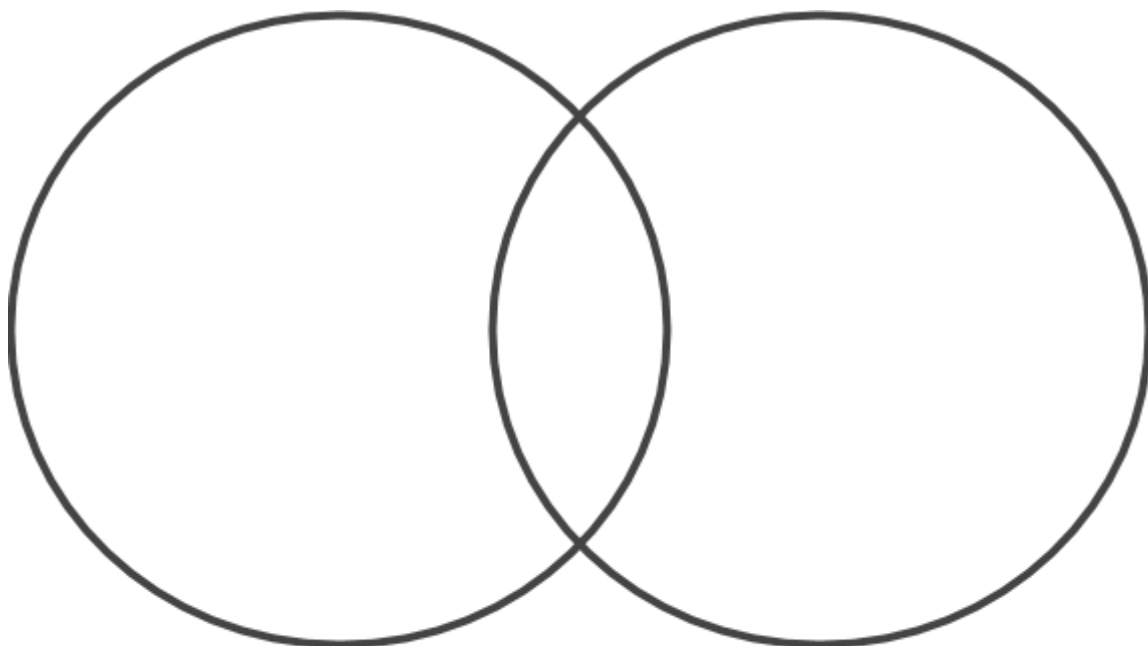
Reduce: _____

Reuse: _____

Recycle: _____

In the venn diagram below, record items you **can** and **cannot** recycle.

If objects have some parts which are recyclable and some which are not, put them in the middle bit.

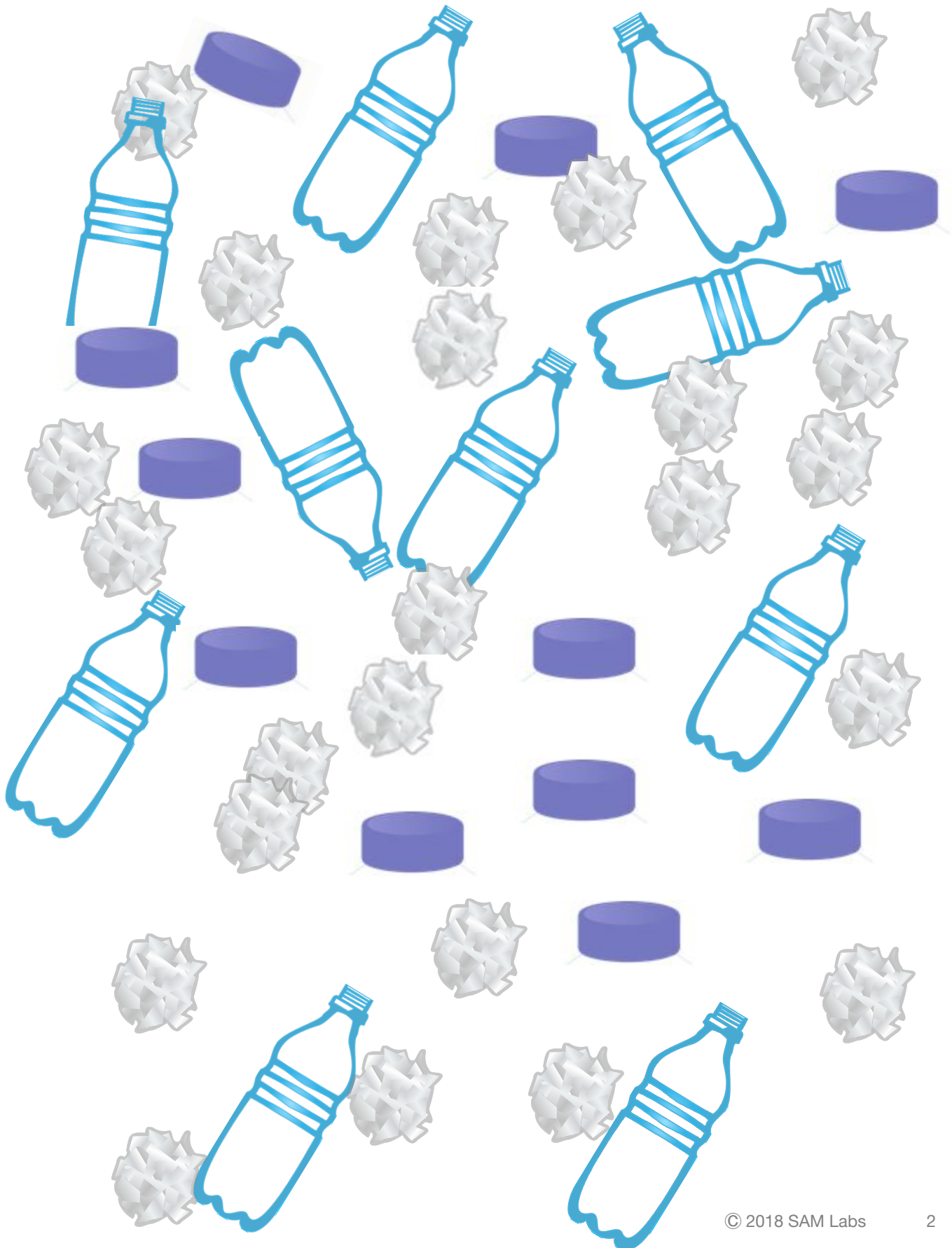


Things we can recycle

Things we cannot recycle



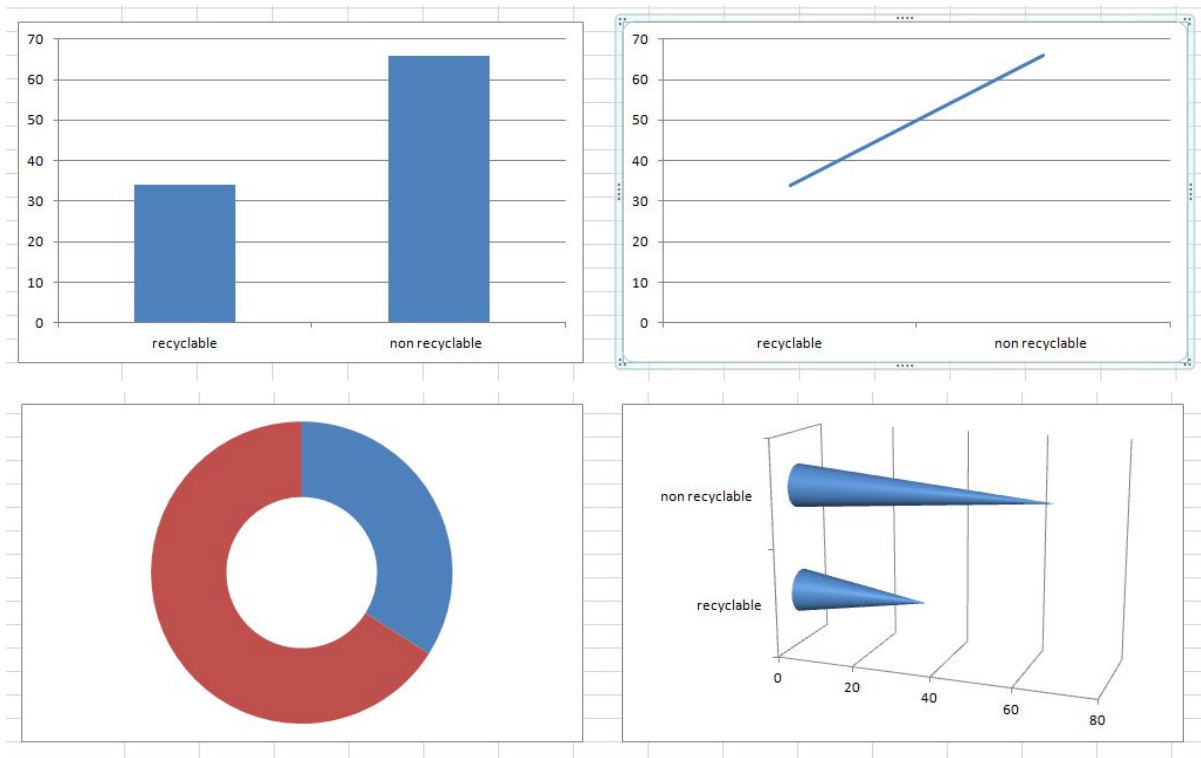
Estimate how many of each object can be recycled.



Mini-lesson

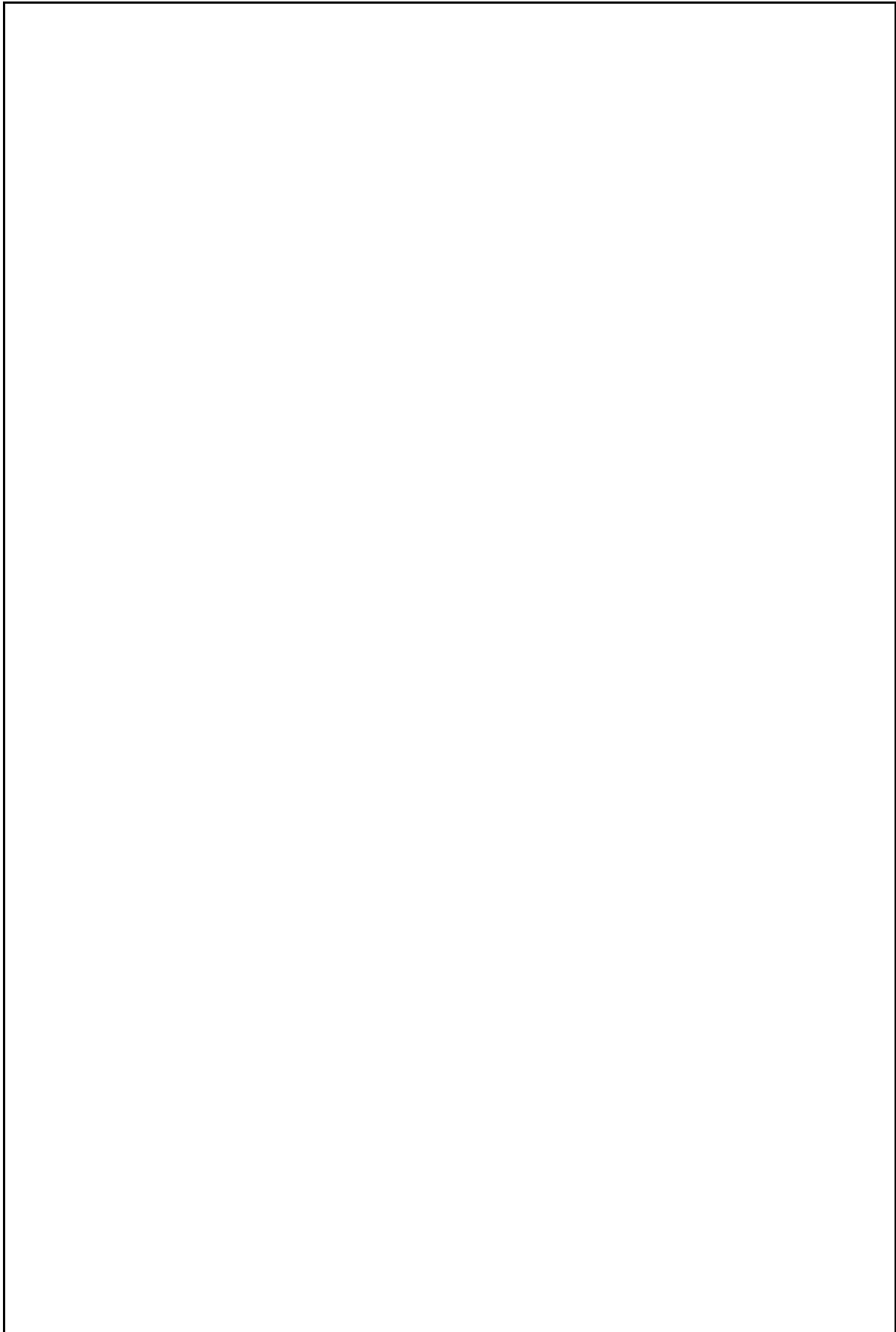
Pictographs are a way of representing information. They can be an effective means of making people aware of data. None of the examples below are pictographs. Answer the questions below.

- *What type of graphs are these?*
- *Which of these graphs represents 34% best?*
- *Put them in order of easiest/hardest to read.*



Use the data to design a pictograph in the space below.

- This month, we have recycled 34 items of 100 items. Those items include:
 - 10 plastic bottles
 - 5 tin cans
 - 15 pieces of paper
 - 4 paper clips



Keyword Review

Draw a line from each word to the correct meaning.

Recycle



To use something again, rather than buy a new one

Reduce



To collect data at a given interval

Reuse



Your surroundings, where you are.

Log



To convert trash into reusable material

Environment



To use less of something

Let's Discuss

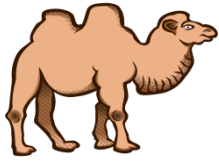
In your workbook or with a partner, record, discuss, or share one way we can recycle more of our household trash.

We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your system.

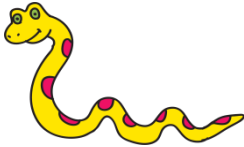
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Warm Up

Draw a line between the sound and the animal it belongs.



Hiss



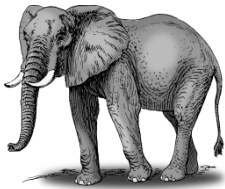
Trumpet



Ribbet



Spit



Bleat



Woof



Scream



Roar

Onomatopoeia: An onomatopoeia is a word which names the sound, but also sounds like the sound.



Identify other onomatopoeias you know...

Mini-lesson

Write your story

Explore the sounds in the SAM Space app and choose at least 5 sounds to include in your story. Identify them in the space below.

	Word	Sound
1		
2		

3		
4		
5		

Plan your story

Beginning	
<i>Who are your characters?</i>	<i>Where will the story happen?</i>
Middle	
<i>What happens to your characters?</i>	

End

How does your story end?

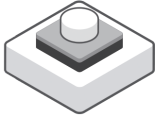

Let's Discuss

Record, discuss, or share an example of how else you could make your story fun and interactive.

Challenge 1

Plan your system

1. What blocks do you need?

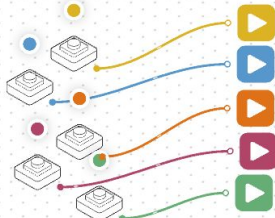
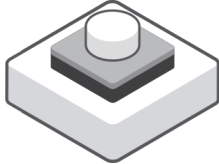


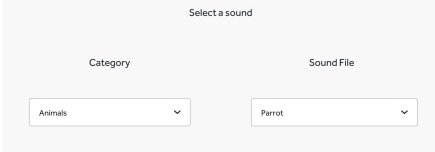
	The Button block enables you to turn on or activate a program.
	The Sound Player block enables you to select and play an audio file. This produces sound when it receives a true value.

2. Sketch your plan: Think about the SAM system you want to create and use the space below to draw it out.

- Which are your inputs and outputs?
- How will they be connected together?
- What settings do you need to edit?

Challenge:

Look at the pictures and read the steps that describe the Worked Example. What happens first? Second? Third? Write the number of the step to match each picture. Step 1 has been completed for you.

Steps	Instructions	Workspace
	<p>Connect your Buttons (the input) to the Sound Player blocks (the output)</p>	
<p>Step 1</p>	<p>Drag an additional 2 Button or Virtual Buttons into your workspace</p>	
	<p>Read your story to your partner, encourage them to join in and press the buttons in the correct places.</p>	
	<p>Drag an additional 2 Sound Player blocks into your workspace.</p>	
	<p>Program your sounds in the remaining Sound Players. Test your system.</p>	



We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases to discuss the steps you took to create your interactive storybook.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
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Warm Up

An algorithm is a set of instructions. Can you write a set of instructions to get from A to B.

Test your instructions by asking someone to follow them.

Mini-lesson

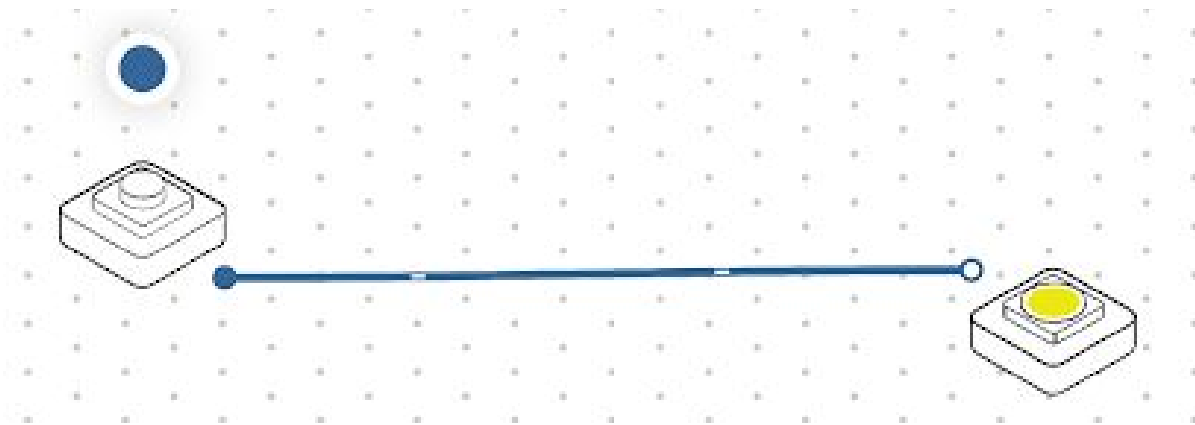
Keyword Review

Draw a line between the keyword and its definition.

A set of instructions is called an _____.

Look at the image of a SAM system below and label the below:

Input	Output	Event	Action
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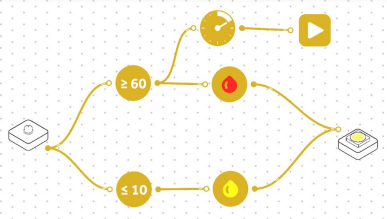
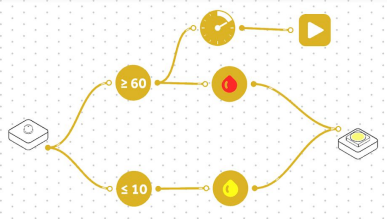
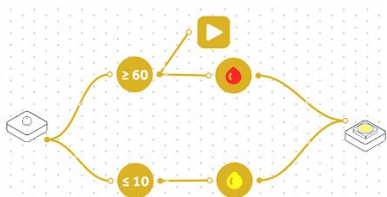


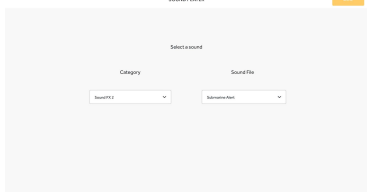

Let's Discuss

In computing terms, what is a set of instructions called? In your workbook or with a partner, record, discuss, or share the event and action for your safe and how they will work together.

Challenge 1

Look at the pictures and read the steps that describe Challenge 1. What happens first? Second? Third? Write the number of the step to match each picture. Step 1 has been completed for you.

Steps	Instructions	Workspace
<p>Step 1</p>	<p>Drag onto the workspace:</p> <ul style="list-style-type: none"> • Sound Player block • Interval block. 	
	<p>Test your system.</p>	
	<p>Connect the Interval block between the '≥ 60' Compare and the Sound Player blocks.</p>	
	<p>Connect the Sound Player block to the output of the '≥ 60' Compare block.</p>	

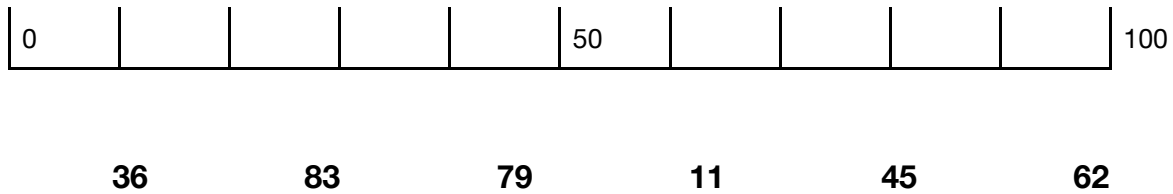
	<p>Access the settings of the Sound Player block and select a sound for your alarm.</p>	
	<p>Access the settings of the Interval block and set to '500' milliseconds.</p>	

We can use transitional phrases to talk about the order events or actions that take place. Practice using transitional phrases when presenting your system.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
first/second/third	also	but	because
next	equally	however	so
after	likewise	otherwise	therefore
then	in addition	on one hand... ...on the other hand	as a result
finally/overall/ to sum up	similarly	opposite	due to

Warm Up

On the number line below, identify where you think the bolded numbers should go.



Mini-lesson

Keyword Review

Define the following terms in your own words:

Tens: _____

Half way: _____

Ones: _____


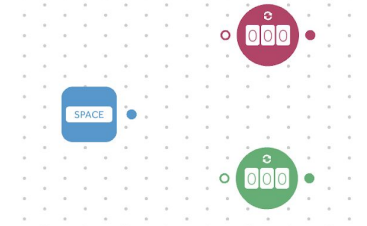
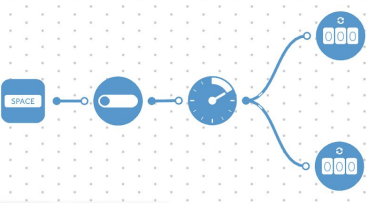

Round: _____

Let's Discuss



In your workbook or with a partner, record, discuss, or share an example of how you would explain rounding to a family member.

Challenge 1

Look at the pictures and read the steps that describe Challenge 1. What happens first? Second? Third? Write the number of the step to match each picture. Step 1 has been completed for you.

Steps	Instructions	Workspace
	Connect the Toggle block to the Key Press block.	
Step 1.	Disconnect the Key Press block from the 2 Counter blocks.	
	Connect the Interval block to both of the Counter blocks.	
	Connect the Interval block to the Toggle block.	

Round and Round

	Drag a Toggle block onto the workspace.	
	Drag an Interval block onto the workspace.	

We can use transitional phrases to talk about the order events or actions that take place. Practice by using transitional phrases in order to present your system.

Time & Sequence	Compare (+)	Contrast (-)	Cause and Effect
first/second/third	also	but	because
next	equally	however	so
after	likewise	otherwise	therefore
then	in addition	on one hand... ...on the other hand	as a result
finally/overall/to sum up	similarly	opposite	due to