

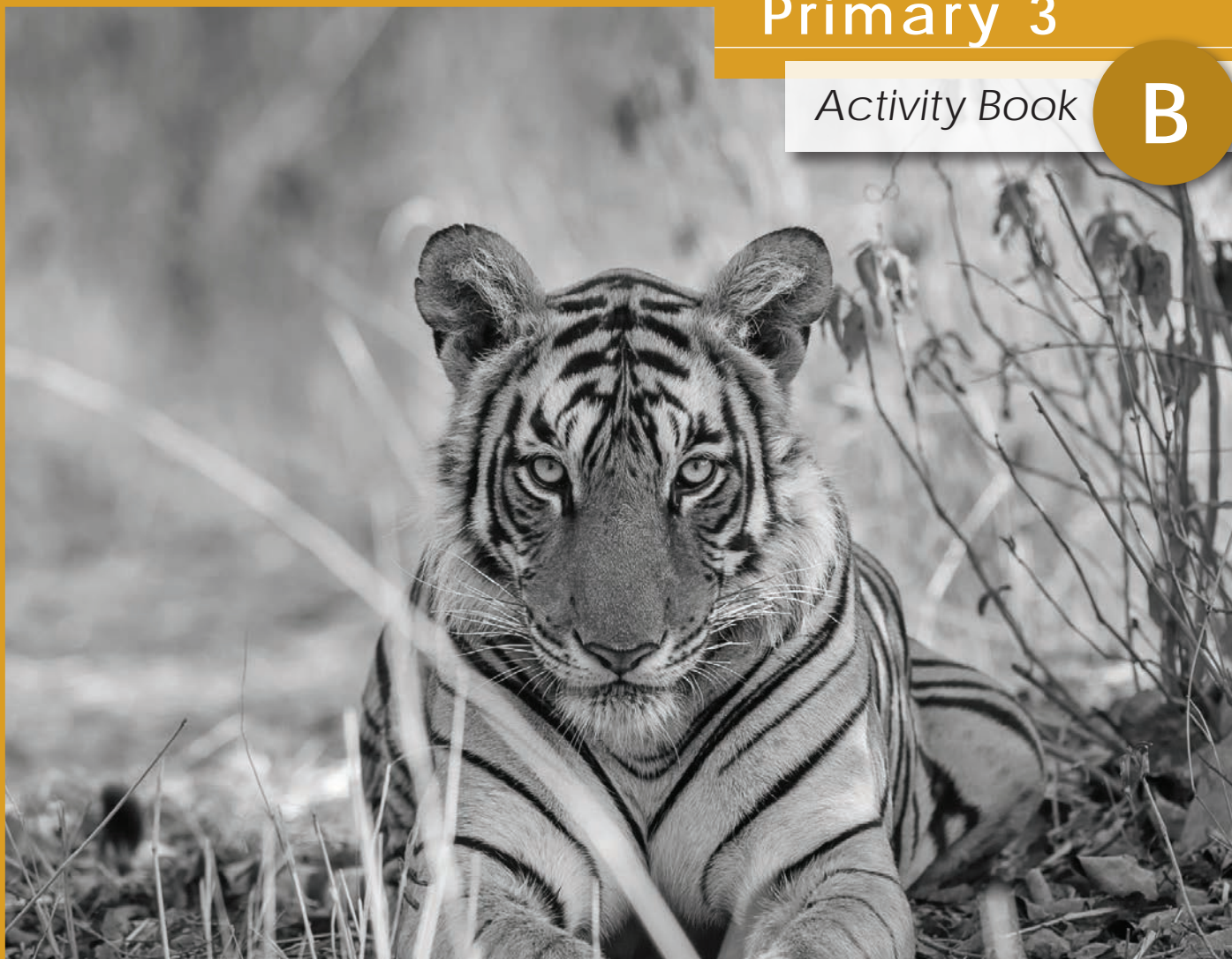


Let's Do SCIENCE

Primary 3

Activity Book

B



Let's Do Science

Let's Do Science is based on the United States Next Generation Science Standards (NGSS). The series consists of full-color textbooks and full-color activity books for Grades K to 6.

Let's Do Science engages students with a highly visual presentation of the disciplinary core ideas in the textbooks and places an emphasis on applying scientific knowledge using NGSS practices through numerous scientific investigations. Let's Do Science sees engineering as an essential element of science education and as such is tightly integrated into both the textbooks and activity books.

The Let's Do Science activity books include the following features:

AB Activity

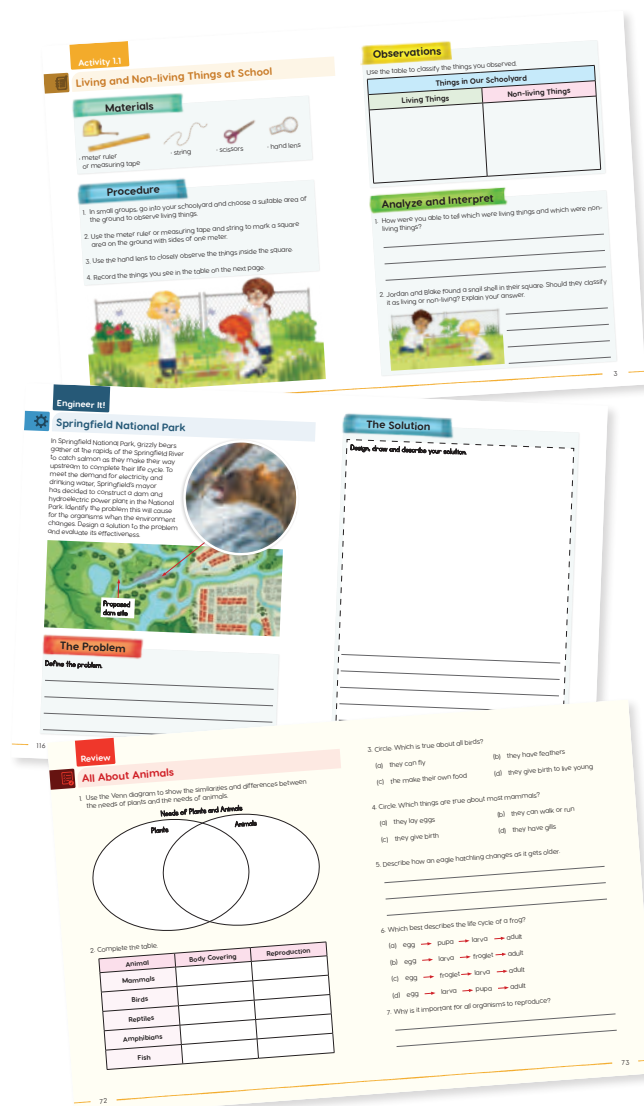
Activities and investigations related to concepts and topics covered in the Let's Do Science Textbook.

Engineer It!

Goes beyond inquiry by encouraging students to design, model and build to engineer solutions to defined problems.

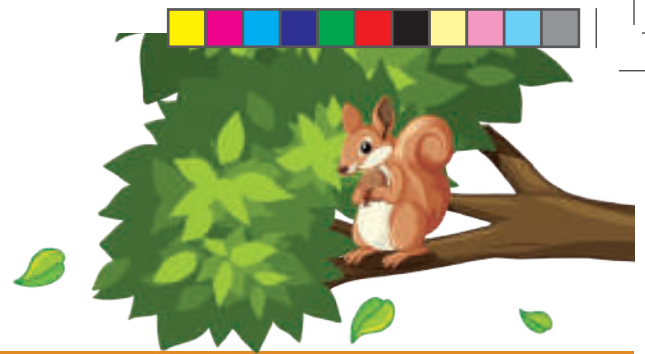
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Topical questions at the end of each chapter for formative assessment.





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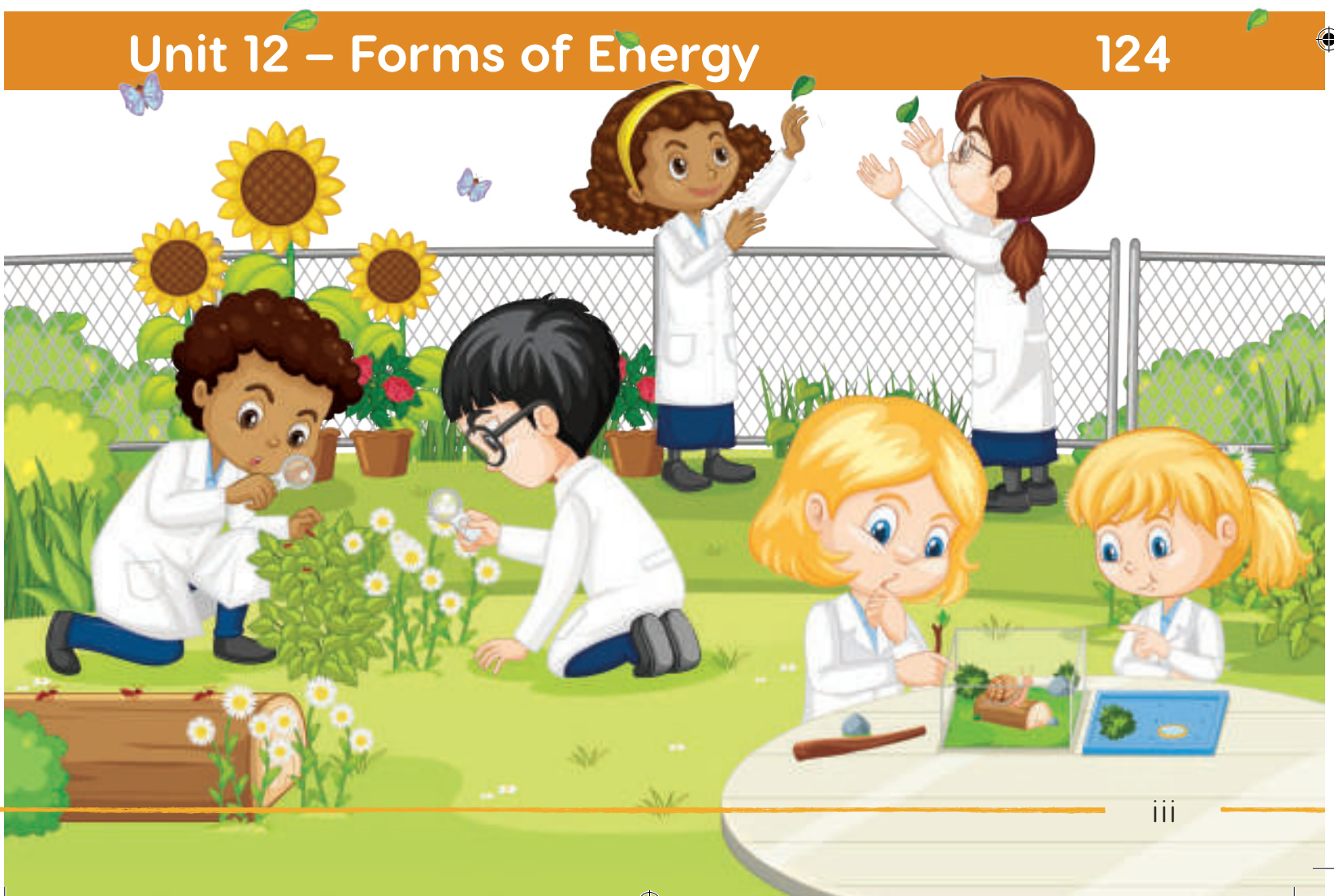
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Activity 7.1



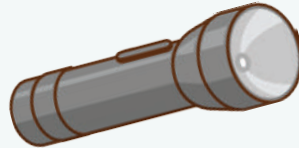
Modeling the Movement of Earth

Materials

· basketball



· flash light



· stickers or tape



Procedure

1. The basketball will be used to represent the Earth. Place a sticker or a piece of tape on the basketball.



2. Turn off the lights in the classroom. One person holds the basketball and another turns on the flashlight and points it at the basketball.



3. Slowly rotate the basketball and observe the sticker as it completes one full rotation.





4. Tilt the basketball on an axis so that the top half is pointed towards the flashlight. Move in a circle around the flashlight while keeping the basketball tilted.



5. Observe the light hitting the basketball as you complete one full revolution around the flashlight.

Observations

1. Draw two diagrams to show the rotation of the basketball and the position of the sticker when it is facing towards the flashlight and away from the flashlight.

Sticker facing towards flashlight

Sticker facing away from flashlight



2. Draw two diagrams to show the revolution of the basketball around the flashlight. Show the basketball at opposite sides of the flashlight.

Side one



Side two



Analyze and Interpret

1. Describe what happens to the light hitting the sticker as the basketball completes one rotation.



2. The sticker represents a point on Earth such as your home. Describe how your home changes as the Earth completes one rotation.

3. Describe how the light hitting the top half of the basketball changes as you complete one revolution.

4. The tilting basketball represents the Earth's axis. Describe how seasons change in the Northern and Southern hemispheres as the Earth revolves around the Sun.

Activity 7.2



Modeling the Movement of the Moon

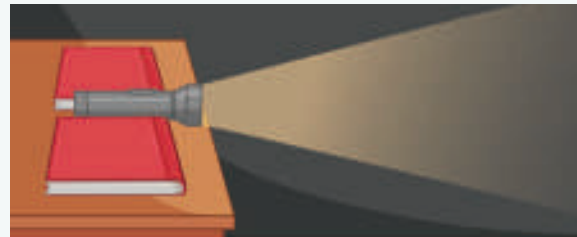
Materials

- ping pong ball
- flashlight



Procedure

1. Turn off the lights in your classroom. Turn on the flashlight and place it on a table. Use a book or pencil case to fix its position.
2. Stand about two meters from the flashlight facing towards it. Hold out the ping pong ball at arm's length in front of you. Observe how much of the ping pong ball is in darkness and how much is reflecting light from the flashlight.
3. Turn to the right so that the flashlight is on your left side. Hold the ping pong ball out in front of you at arm's length. Observe what parts of the ping pong ball are reflecting light from the flashlight.



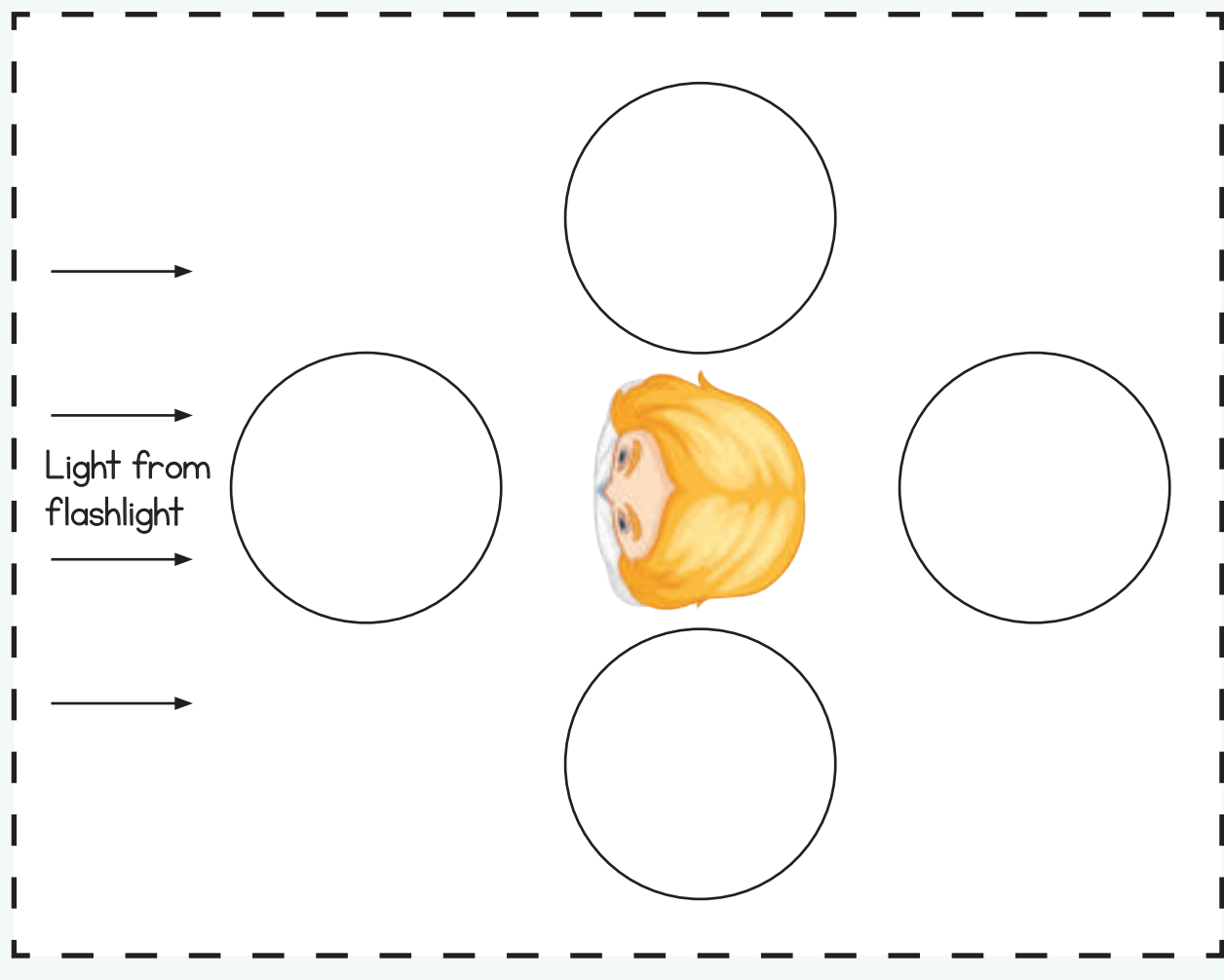


4. Keep turning and observing the light on the ping pong ball until you return to your starting position.



Observations

Shade the ping pong ball at each position to show the parts that were in darkness and the parts that were reflecting light.





Analyze and Interpret

1. In what position was the ping pong ball in darkness?

2. In what position was the ping pong ball reflecting the most light?

3. From your observations, explain why the moon appears to change shape in the sky each night. Draw a diagram to help your explanation.



Review



Earth and Space

1. What causes day and night on Earth?

2. Check the true statements, cross the false statements.

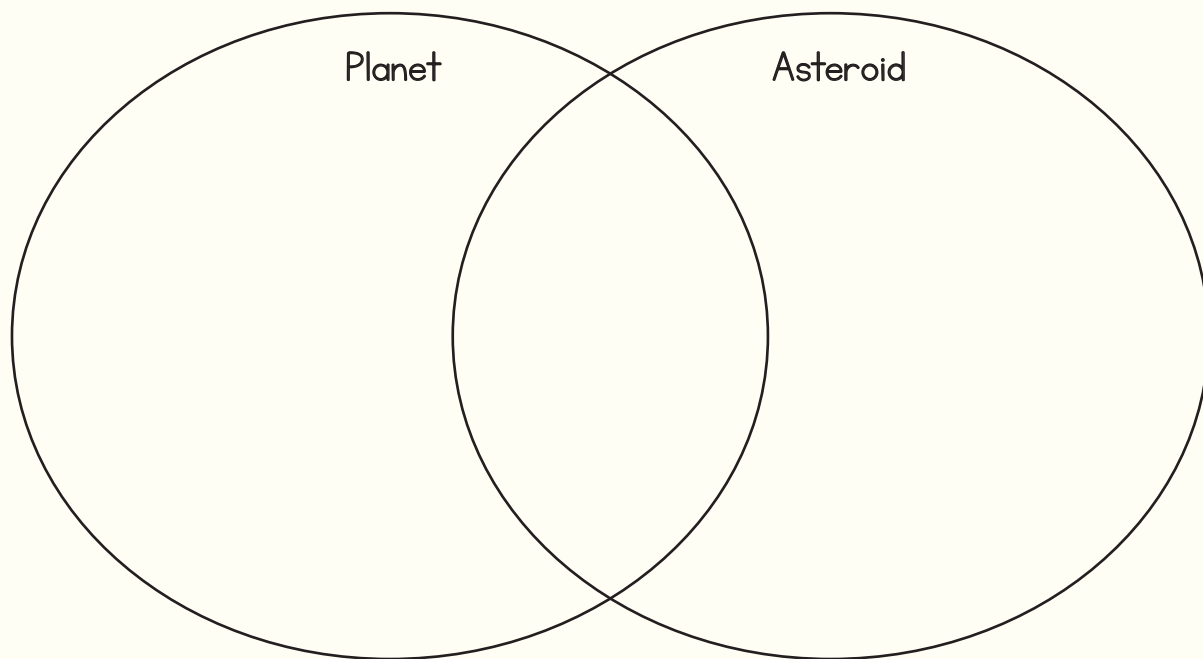
- We experience summer when the Earth moves close to the Sun.
- Earth completes a full rotation every 24 hours.
- When the Northern Hemisphere experiences summer, the Southern Hemisphere experiences winter.
- Jupiter is the largest object in the solar system.
- Seasons are caused by the tilted axis of the Earth.
- The phases of the moon are caused by sunlight reflecting off different parts of the moon as it revolves around the Earth.

3. Explain the difference between meteoroids, meteors and meteorites.

4. Write a short description about the objects that can be found in the solar system.

Object	Description
Sun	
Satellite	
Planet	
Asteroid	

5. Use the Venn diagram to compare planets and asteroids.





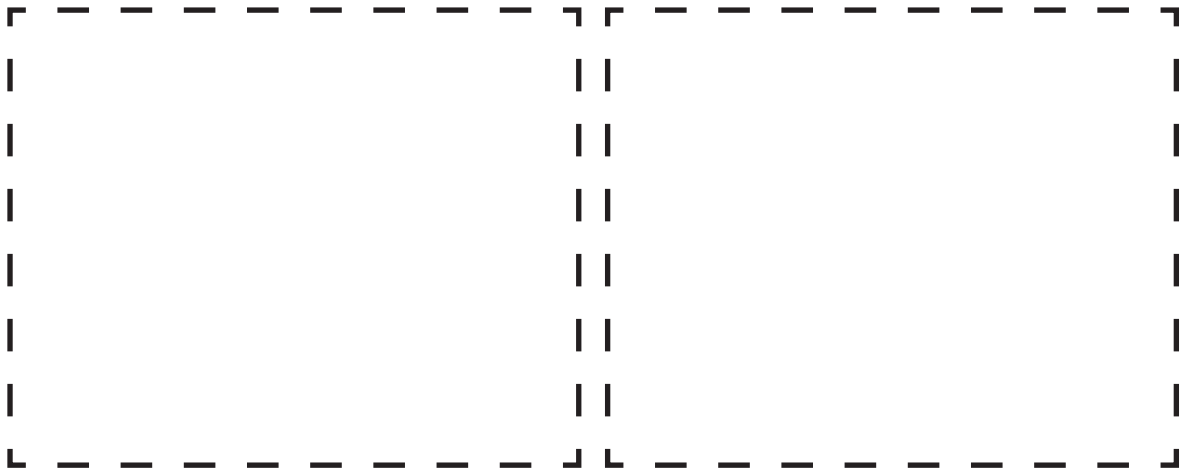
Activity 10.1



What Is Matter?

1. Find two things in your classroom or outside in the schoolyard that are matter.

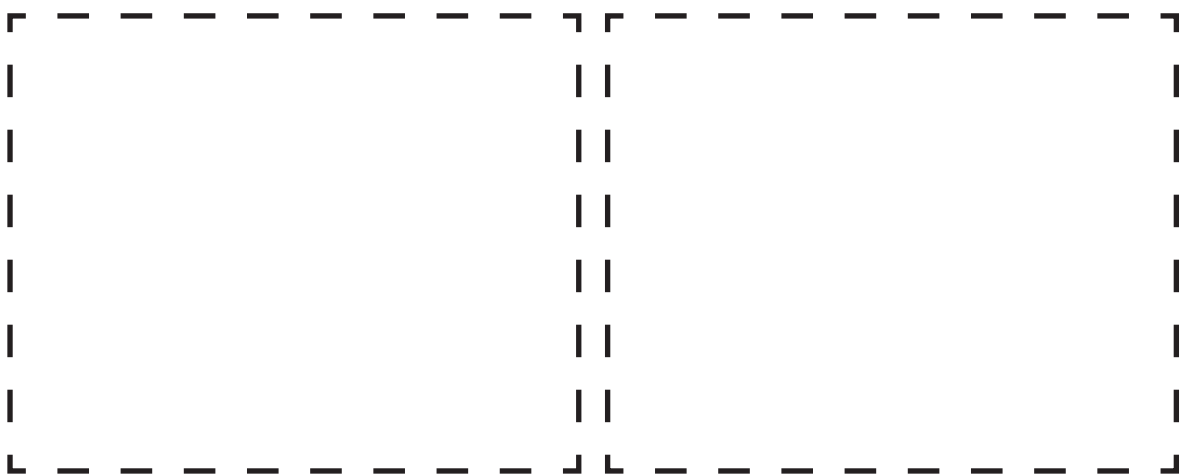
(a) Draw and label the things you find.



(b) Explain how you know these things are matter.

2. Find two things in your classroom or outside in the schoolyard that are not matter.

(a) Draw and label the things you find.



(b) Explain how you know these things are not matter.

3. List the matter you can see in the picture.



4. Ethan's younger brother thinks their reflection in a mirror is matter. Is he correct? Write an explanation to help them understand.

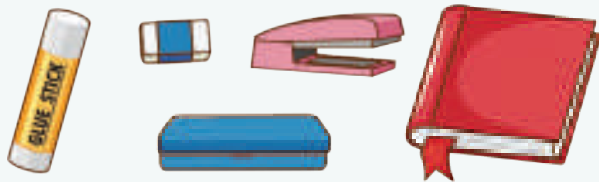
Activity 10.2



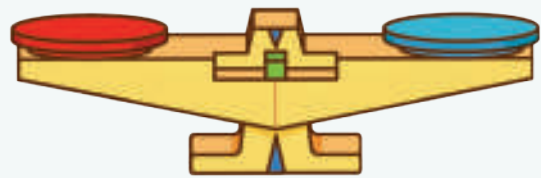
Comparing the Mass of Solids

Materials

• 5 classroom objects



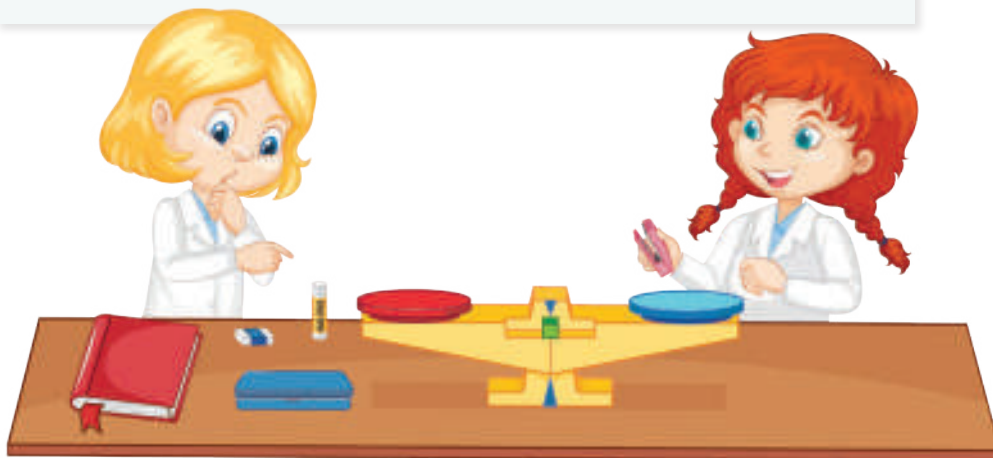
• balance



Make a Prediction

Make a prediction. List the objects in order from the least mass to the greatest mass.

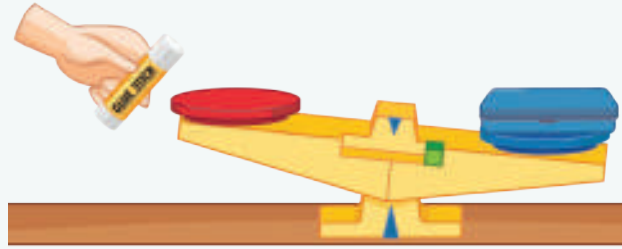
1. _____
 2. _____
 3. _____
 4. _____
 5. _____
- least mass
↓
greatest mass





Procedure

1. Place pairs of objects on the balance to compare their mass.
2. Record your observations and rank the objects by mass.



Observations

Write the objects in order from the least mass to the greatest mass

1. _____ least mass
2. _____
3. _____
4. _____
5. _____ greatest mass

Analyze and Interpret

1. Were your predictions correct?

2. Ethan says that bigger objects have more mass. Is this always true? Explain your answer.

Review



States of Matter

1. Check the things that are matter. Cross the things that are not matter.



paper clips



pebbles



puddle of water



rainbow



milkshake



a thought



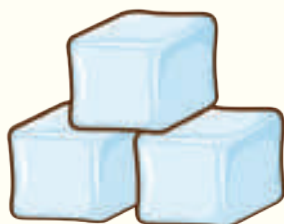
steam



fire alarm

2. List the three states of matter and give an example of each.

3. Draw and label a picture to show how the ice block will change.



ice blocks



heat



4. Draw and label a picture to show how the water will change.



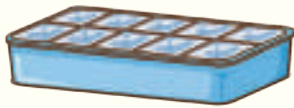
beaker of water



heat



5. Draw and label a picture to show how the water in the ice-cube tray will change.



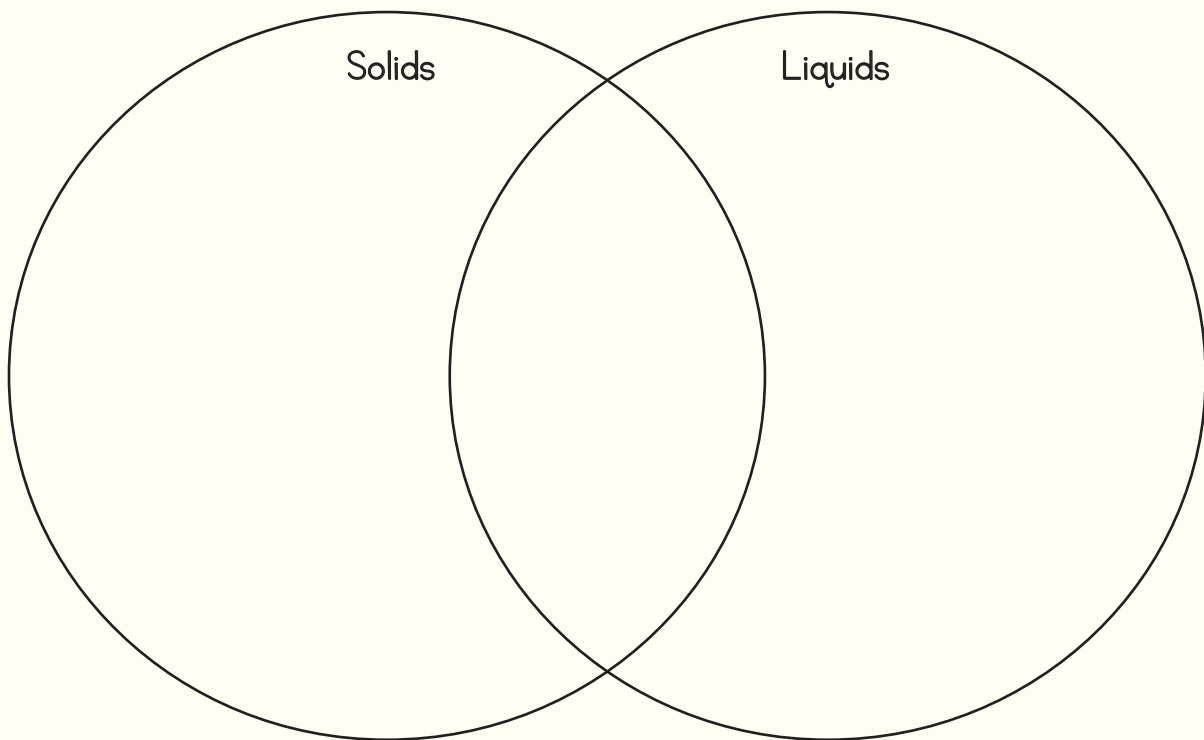
ice-cube tray
of water



freezing



6. Compare and contrast solids and liquids using the Venn diagram.

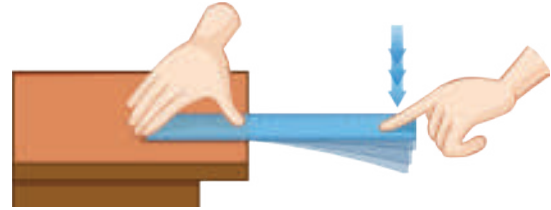


Activity 12.1



Sound and Vibrations

1. Hold a ruler over the edge of your desk as shown. Make sound by plucking the ruler. Describe how the ruler makes sound and how you are able to hear the sound.



2. Describe how each instrument makes sound.

(a) Ukulele



(b) Xylophone





(c) Saxophone



3. Go into your schoolyard with your friends. Close your eyes and listen to the sounds around you. Describe and record the sounds in the table below.

Sound	Description of Sound	What Vibrated to Make the Sound?

Activity 12.2



Observing and Describing Sounds

Materials

- assortment of objects that make sound



Procedure

1. Your teacher will go to the back of the classroom and use an object to make sound.
2. In the table on the next page, describe the volume and pitch of the sound. Guess the object that is making the sound.
3. Your teacher will show the class the object that made the sound. Record if your guess was correct.



Observations

Record your observations in the table below.

Object You Think Made the Sound	Volume and Pitch	Object That Made the Sound

Analyze and Interpret

1. Which object produced the loudest sound?

2. Which object produced the softest sound?

3. Which object produced a sound with the highest pitch?

4. Which object produced a sound with the lowest pitch?



Build a Stringed Instrument

In this activity, you will design and build a musical instrument that produces different sounds using strings. The sounds your instrument produces can be changed in volume and pitch.

Materials

List the materials you will need to build your instrument.

Procedure

Write the steps you will take to build your instrument.



Draw a Model

Draw a model and label your instrument. Label the materials you used.

Analyze and Interpret

1. How did you change the volume of the sounds?

2. How did you change the pitch of the sounds?

3. Evaluate the effectiveness of your instrument. How could your instrument be improved?



Observations

Which spoon felt the warmest after five minutes?
Write '1' for the warmest and '3' for the coolest.



Analyze and Interpret

1. Based on your observations, would you say metal is a good or poor conductor of heat? Explain your answer.

2. Based on your observations, would you say wood is a good or poor conductor of heat? Explain your answer.

3. Based on your observations, would you say plastic is a good or poor conductor of heat? Explain your answer.



Activity 12.7



Forms of Energy – Comprehension

Use your textbook to help you fill in the blanks.

1. All living things need _____ to live and grow.
2. Most of the energy on Earth comes from our _____.
3. _____ is a form of energy we can hear.
4. Sound is made when an object _____.
5. Sound travels away from its source in _____.
6. The _____ of a sound is how loud or soft it is.
The _____ of a sound is how high or low it is.
7. Something that gives out light of its own is a _____.
8. Light travels out from a source in a _____.
9. We can see objects that are not sources of light when they
_____ light.
10. The movement of energy due to a difference in temperature is
called _____.



Review



Forms of Energy

1. List three different forms of energy.

2. Describe how sound is made and how we are able to hear sounds.

3. What is the difference between a natural source of light and an artificial source of light?

4. Why does the moon light up the night sky?

5. What will happen to the temperature of a cold metal rod that is placed in tub of hot water?

6. List one object that is a good conductor of heat.

7. List one object that is a poor conductor of heat.
