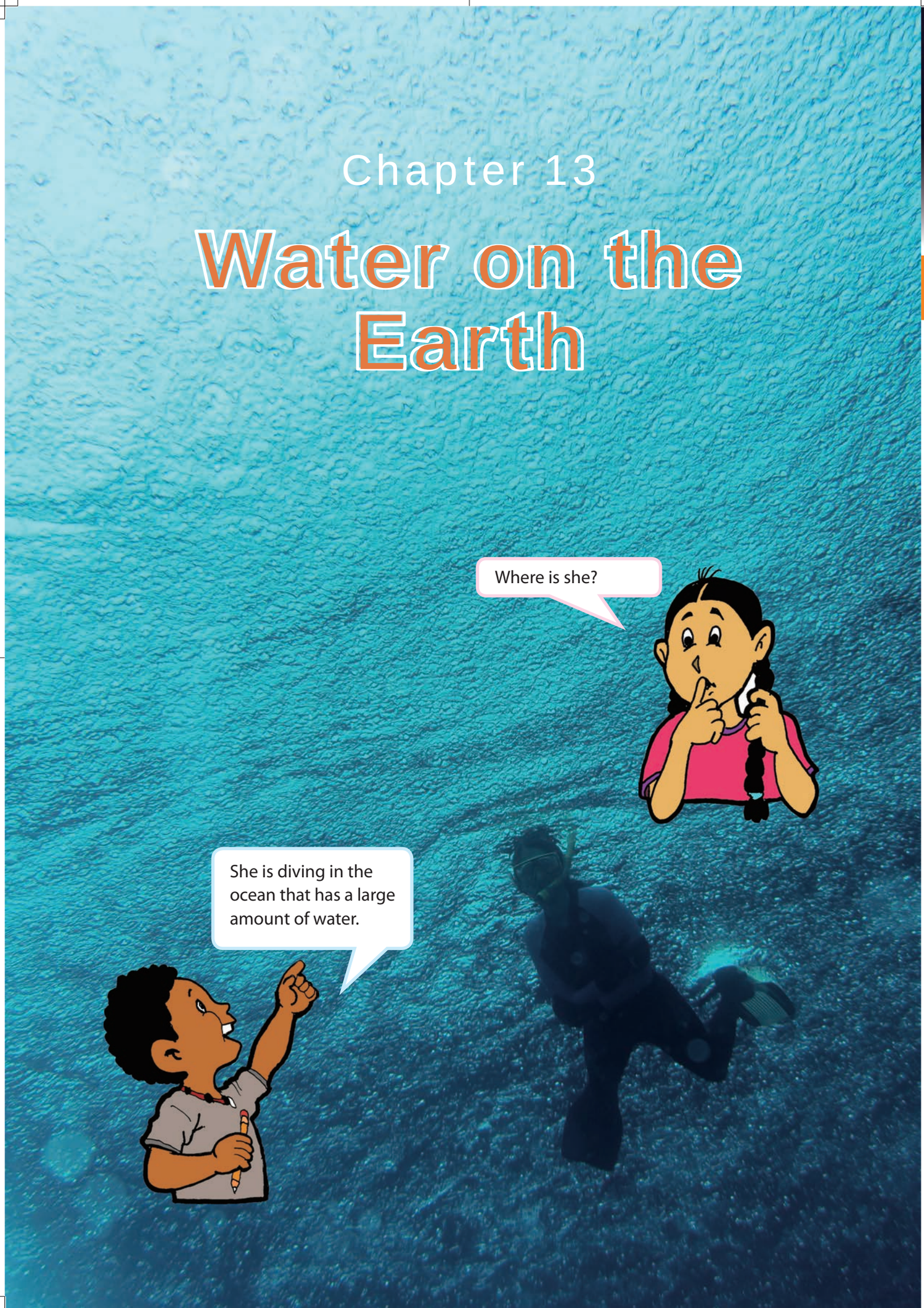
Chapter 13

Water on the Earth



13.1 Water in Natural World

Lesson 1: "Sources of Water"

Look around us! We can find water in many places.

Where does water come from?

Activity : Finding water around us

What to Do:

1. Draw a table like the one shown below.

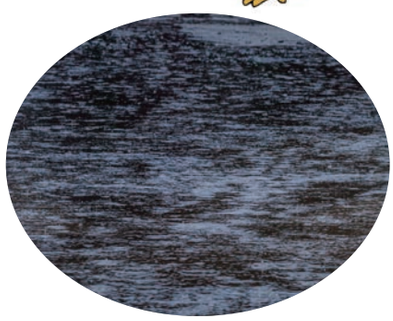
Where can you find water?

2. Make a list of where you can find water in the table.
3. Share your ideas with your classmates. Talk about where water comes from.

Summary

Water can be found in many places on the earth. The place where water comes from is called **source of water**. Sources of water can be classified into two groups; **natural sources** and **man-made sources of water.**

Natural Sources of Water



Rain, oceans, rivers, lakes, streams, ponds and springs are natural sources of water. Salt water can be found in oceans and seas. Rivers, lakes, streams, ponds and springs have fresh water. Fresh water is also found underground.

Natural sources of water

Man-made Sources of Water

Dams, wells, tube wells, water taps and hand-pumps are man-made sources of water.

Man-made sources of water

Lesson 2: "Puddle Is Gone!"

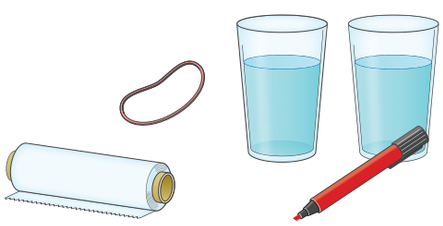
We find puddles on the ground after rain. After a while, the puddle disappears.

Where has the puddle gone to?

Activity : Finding where water goes

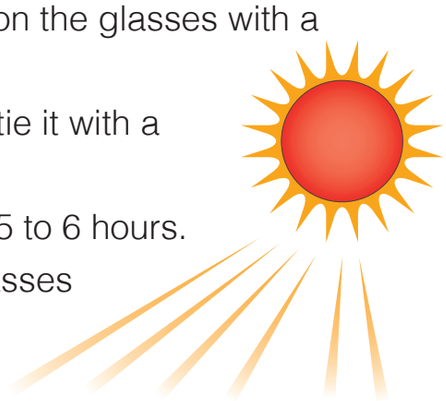
What We Need:

- two glasses, water, rubber band, plastic wrap, marker pen

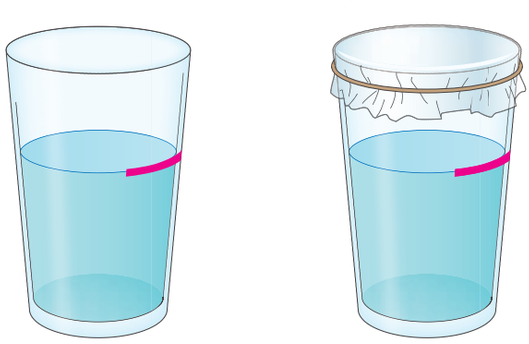


What to Do:

1. Pour same amount of water into two glasses and label them A and B. Put a mark at the water level on the glasses with a marker.
2. Cover glass B with a plastic wrap and tie it with a rubber band.
3. Place the glasses in a sunny place for 5 to 6 hours.
4. Observe the amount of water in the glasses and on the wrap.
5. Share your observation with your classmates.



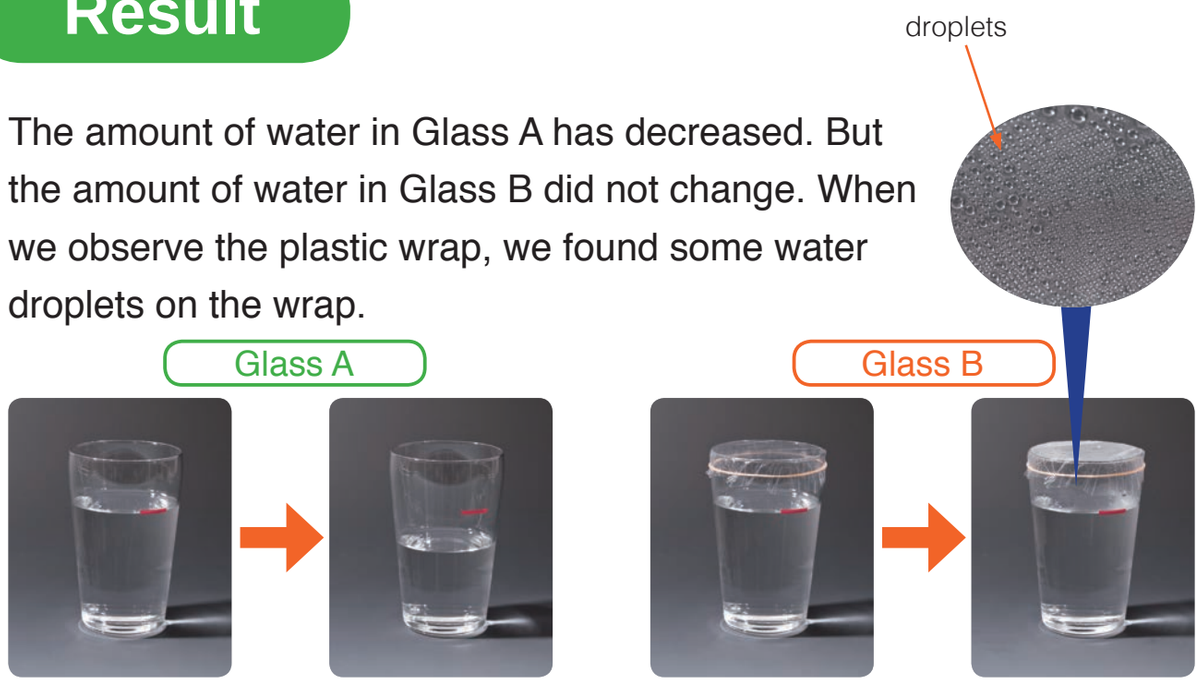
Can you guess what will happen to the water in Glass A and Glass B?



Glass A Glass B

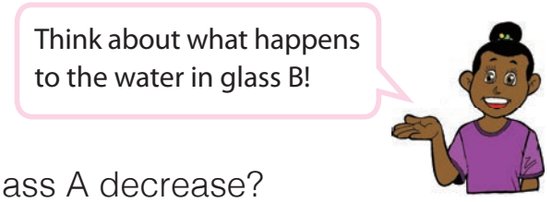
Result

The amount of water in Glass A has decreased. But the amount of water in Glass B did not change. When we observe the plastic wrap, we found some water droplets on the wrap.



Discussion

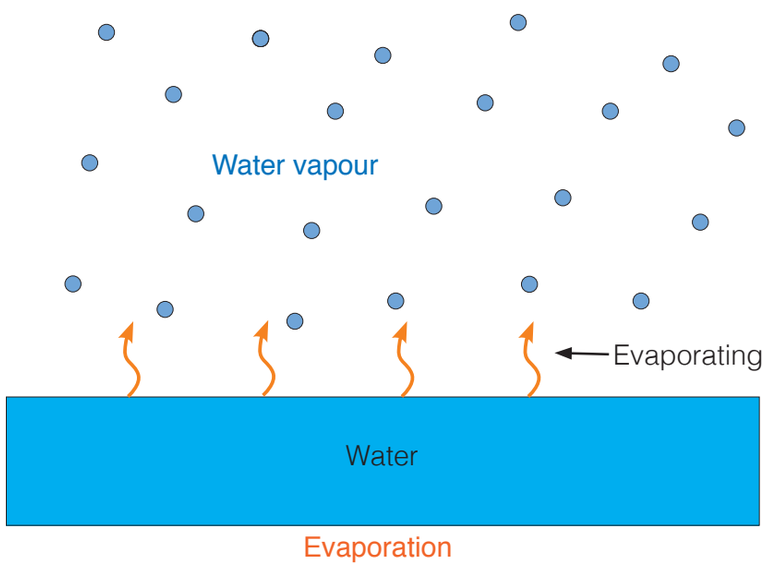
Where has the water gone to?



1. Think about the following questions based on the results:
   - Why did the amount of water in Glass A decrease?
   - Why are some droplets observed on the plastic wrap of Glass B?
2. Talk about where water has gone to.

Summary

Water always leaves the surface of water and ground and goes up into the air as water vapour. The change of state of water from liquid to gas is called **evaporation**.



Lesson 3: "Water in Air"

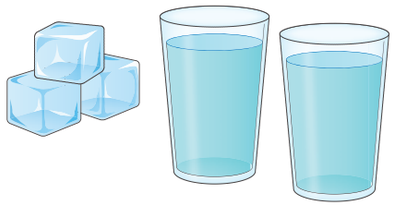
We learnt that water vapour leaves the surface of water and goes into the air. Does water vapour really exist in the air?

How can we find water vapour in air?

Activity : Finding water vapour in the air

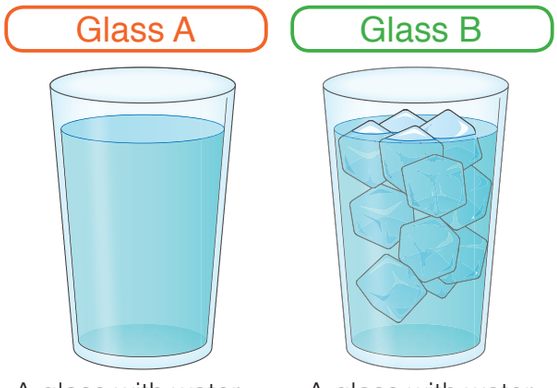
What We Need:

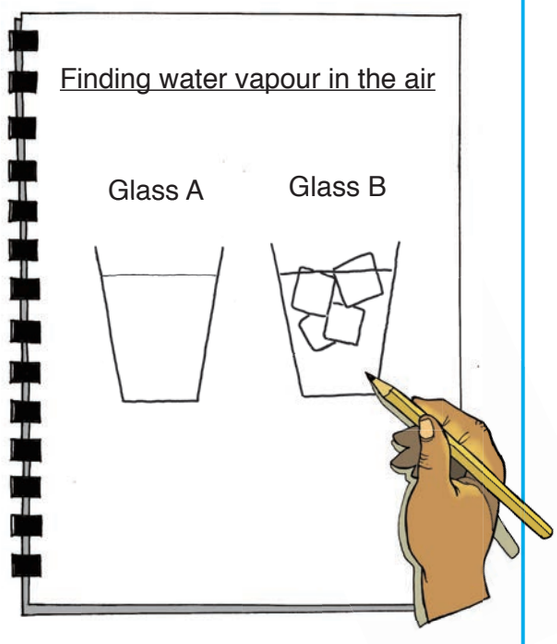
- two glasses with water, ice cubes



What to Do:

1. Wipe the surface of two glasses with a dry towel and pour same amount of water in both glasses.
2. Put ice cubes into one of the glasses and wait for a while.
3. After a while, observe what happens to the surface of both glasses and sketch the surface of the two glasses in your exercise book.
4. Share your observation with your classmates.





Let's compare the surface of the two glasses! What is the difference between them?

Result

Droplets can be seen on the surface of Glass B, but droplets are not seen on the surface of Glass A.

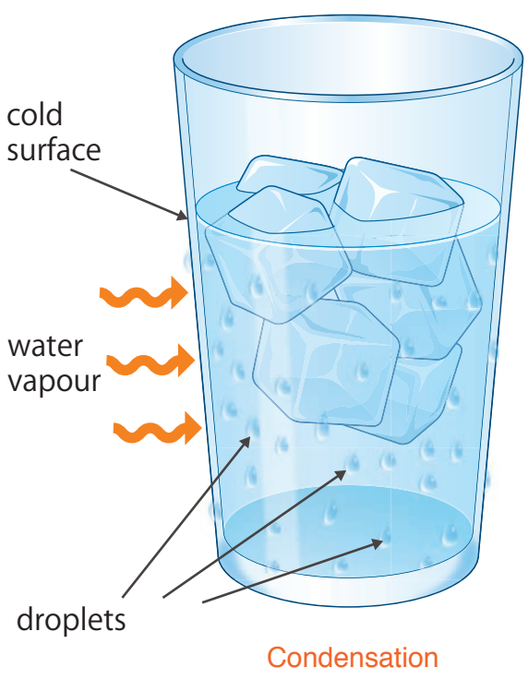
Discussion

Where do droplets come from?

1. Think about the following questions based on the results:
   - What condition is different in Glass A and Glass B?
   - Why are droplets formed only on the surface of Glass B?
2. Talk about where the droplets came from with your classmates.

Summary

Droplets on the surface of the glass come from the water vapour in the air. When air comes into contact with a cold surface, the air cools down. Water vapour in the air cools down and is presented as droplets on the cold surface.
Water vapour changes into water by cooling. The change of state from air to liquid is called **condensation**.



Condensation

Lesson 4: "Water Cycle"

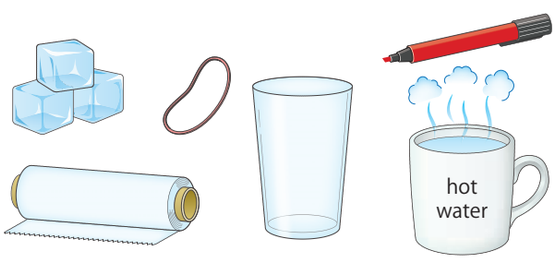
Almost 70 percent of the earth's surface is water. Water can be found in oceans, rivers and as rain on the earth. Where does rain come from? Where does the water in oceans and rivers go to?

Where does water on Earth go and come from?

Activity : A model of changes in states of water on earth

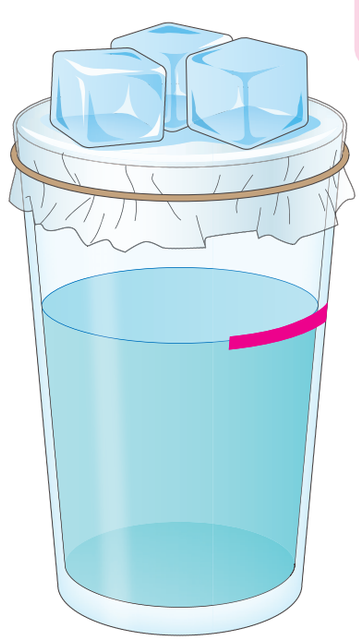
What We Need:

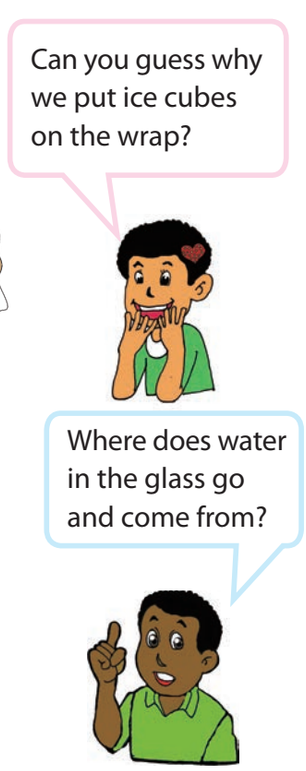
- glass, hot water, ice cubes, plastic wrap, rubber band, marker pen



What to Do:

1. Pour hot water into a glass.
2. Wrap the mouth of the glass with a plastic wrap immediately and tie it with a rubber band.
3. Place a few ice cubes on the plastic wrap.
4. Observe what happens to the inside of the glass and the plastic wrap.
5. Record your observation in your exercise book.
6. Share your observation with your classmates. Talk about how the states of water in a glass change.

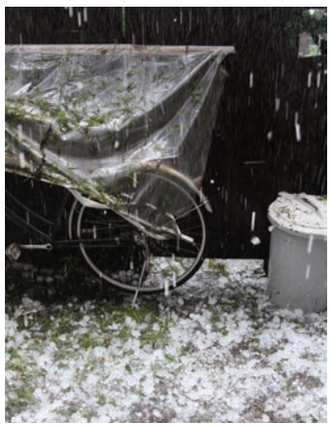




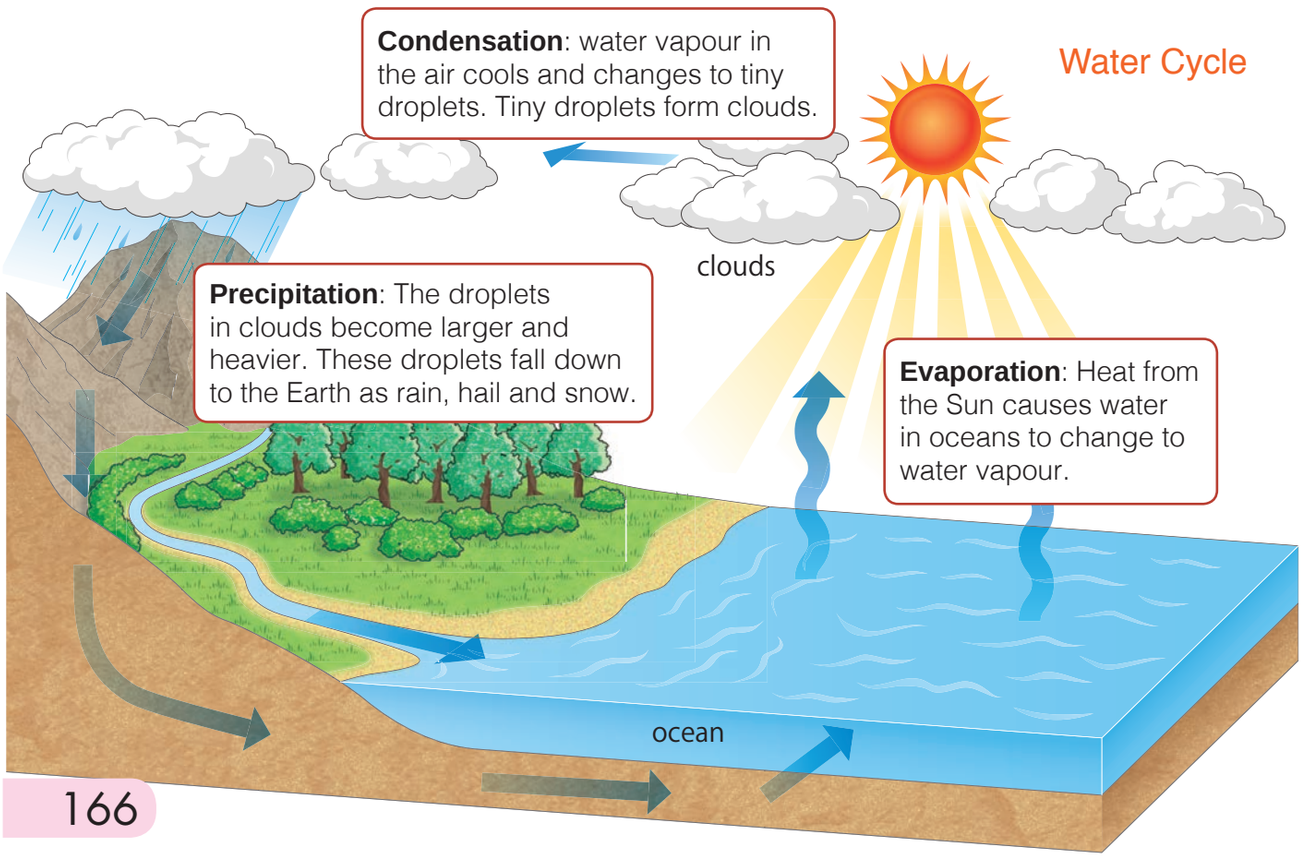
Summary

Water never runs out on Earth. Water on the Earth is always moving through the water cycle. The **water cycle** is the movement of water between the air and the Earth as water changes its state.

When heat from the Sun is added to water in oceans and rivers, liquid water evaporates and forms water vapour in the air. As water vapour rises in the air, it cools and condenses into tiny droplets. These tiny droplets form clouds. The tiny droplets in clouds become larger and heavier. These larger water droplets fall back to Earth as **precipitation**. Precipitation is any form of water that falls from clouds such as rain, snow and hail. Some precipitation are collected in oceans and rivers. Some are soaked into the ground and become groundwater.Water on the Earth moves between the air and the Earth by changing its state from one form to another over and over again.



Precipitation as hail



Summary and Exercise

Summary 13.1 Water in Natural World

Sources of Water

- The sources of water can be classified into two groups called natural sources and man-made sources of water.

Natural sources of water		Man-made sources of water	
			
Waterfall	Salt water	Water tap	Pond

Puddle is Gone

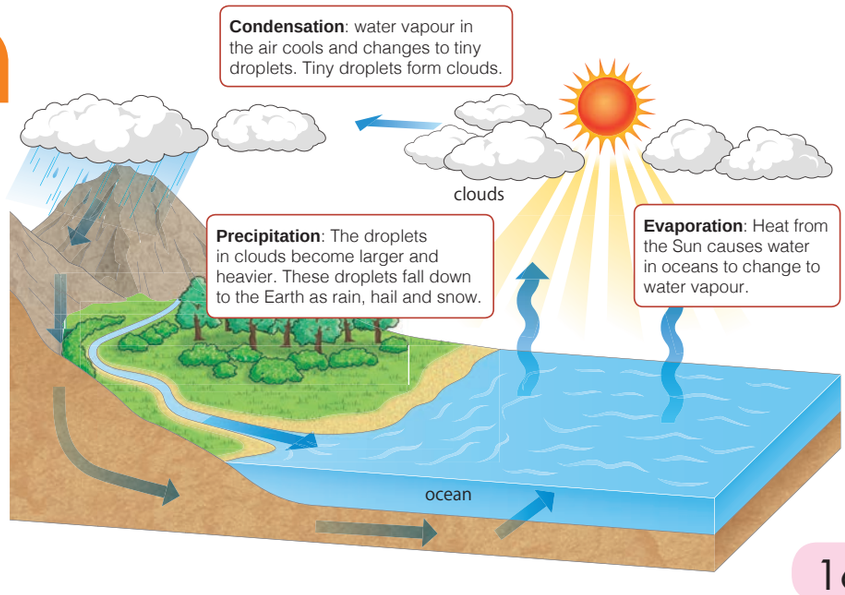
- Water changes into water vapour when heat is added to water.
- The process of changing water from liquid state to gaseous state is called evaporation.

Water in Air

- Water vapour changes into water by cooling.
- The process of changing water from gaseous state to liquid state is called condensation.

Water Cycle

- The water cycle is the movement of water between the air and the earth as water changes state.



Summary and Exercise

Exercise 13.1 Water in Natural World

Q1. Complete each sentence with the correct word.

(1) The place where water is found on the Earth is called_____ of water.

(2) Two main sources of water are natural sources and_____ sources of water.

(3) The change of state from water vapour to water is called_____.

Q2. Choose the letter with the correct answer.

For question (1) and (2), refer to the diagram below showing the water cycle.

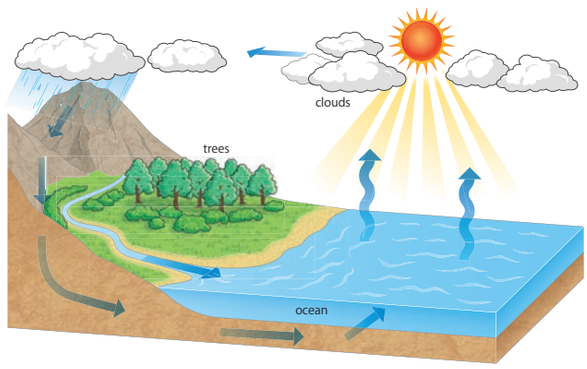
(1) Which part of this cycle includes the rain?

A. Evaporation

B. Precipitation

C. Condensation

D. Runoff



(2) Which of the following allows water to move from the ocean to the air?

A. Evaporation

B. Precipitation

C. Condensation

D. Runoff

Q3. Where can fresh water be found? Write down 2 examples.

Q4. Describe what happens to water as it moves through the water cycle.

13.2 Water and Human

Lesson 1: "Importance of Water for Our Life"

Water is very important. Without water we cannot survive. Why is water so important to us?

How do we use water in our daily lives?

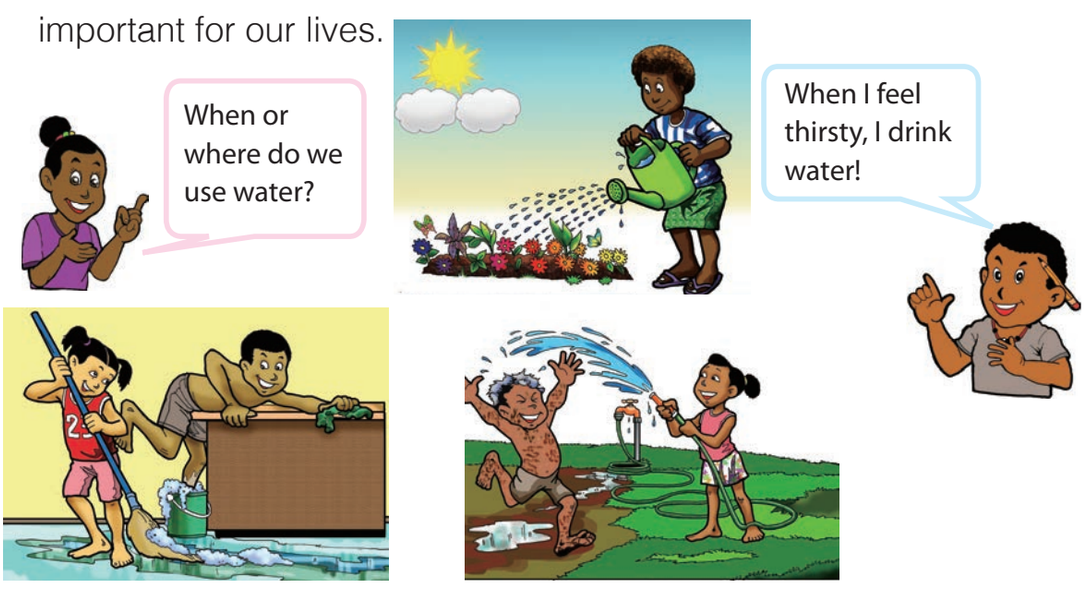
Activity : Finding uses of water in daily life

What to Do:

1. Draw a table like the one shown below.

How do we use water?

2. Make a list of how we use water in our daily lives in the table.
3. Share your ideas with your classmates. Talk about why water is important for our lives.



Summary

Water is very important in our daily lives. We use water in many ways. Water is used for drinking, preparing food, washing hands and clothes. When we take a shower we use water too.

Washing hands with water

Drinking water

Water is also used for agriculture and fish farming. When we grow crops or fish, water is required because plants and fish need water to grow and survive.

Fish farm

Water is widely used for generating electricity. Many power plants are built near a river, waterfall and dams to generate electricity.

Power plant

Lesson 2: "Water Pollution"

Water is very important to us. We need clean water to survive but sometimes we find dirty water in rivers or oceans.

What makes water dirty?

Activity : Finding the causes of dirty water

What to Do:

1. Draw a table like the one shown below.

Causes of dirty water

2. Look at the picture below and find the causes that make water dirty.
3. Make a list of your findings in the table.
4. Share your ideas with your classmates. Talk about what makes water dirty.

Summary

The addition of harmful things into the water is called **water pollution**. Waste, sewage, oil and detergent spilled in water are harmful things.

Water pollution

Water pollution happens when harmful things get into water. Water pollution has many causes. When we throw away rubbish into water, it may cause water pollution. Oil from ships spilled into the ocean may cause water pollution. Waste, sewage and oil from factories, homes and farms are common causes of water pollution.

Rubbish in water

Oil from ship

Polluted water can make people sick if they drink it. It is also harmful to plants and animals. Polluted water can kill water plants and can cause fish to die .

Water pollution causes fish to die.

Lesson 3: "Keeping Water Clean"

Water pollution is harmful to all living things. Polluted water can make people and animals sick or die if they drink or swim in it.

How can we solve the problems of water pollution?

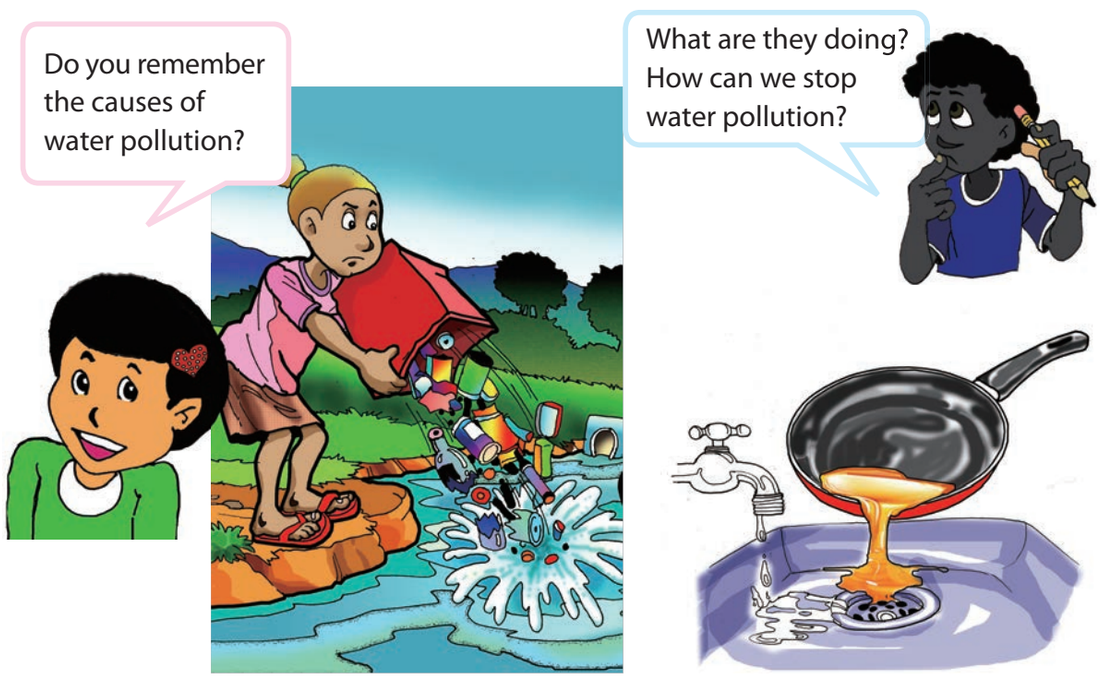
Activity : Ways to save our water

What to Do:

1. Draw a table like the one shown below.

What can you do?

2. Make a list of what you can do to solve the problems of water pollution in the table.
3. Share your ideas with your classmates. Talk about the ways that you can solve the problem of water pollution.



Summary

We can solve the problems of water pollution in many ways. We can help to reduce water pollution by picking up rubbish on the beach, lake and river. We can help keep water clean by cleaning up oil in water.

Children pick up rubbish on the beach.

We can prevent water pollution by reducing the amount of harmful things that is put into the water. The following are some simple tips to help prevent water pollution;

- Avoid throwing away rubbish into ponds, rivers, lakes or oceans. Always look for the rubbish bin.
- Don't throw paints, used oil or other forms of litter down the drainage pipes.
- Use environmentally friendly household products, such as washing powder and household cleaning agents.

Putting rubbish in a rubbish bin helps prevent water pollution.

Do not throw oils down the drainage pipes.

Discussion

"What can you do to prevent water pollution?"

1. Make a list of your rules to prevent water pollution.
2. Share your ideas with your classmates and decide on the common rules.

Summary and Exercise

Summary 13.2 Water and Human

Importance of Water for our life

☑ Water is important for our daily life. We use water in many ways.

Uses of Water			
			
Drinking water	Fish farm	Washing hands	Power plant

Water Pollution

☑ Water pollution happens when harmful things get into the water.

Causes of water pollution
1. Throwing rubbish into water sources.
2. Oil spilled into oceans from ships.
3. Dumping of waste and sewage from factories, homes and farms into water sources.

Keeping Water Clean

☑ Water pollution is harmful to all living things. Polluted water can make people and animals sick or die if they drink or swim in it.

Ways of keeping water clean
1. Avoid throwing rubbish into water sources.
2. Avoid throwing paints, oils or other forms of litter down the drainage pipe.
3. Use environmentally friendly household products.

Summary and Exercise

Exercise 13.2 Water and Human

Q1. Complete each sentence with the correct word.

(1) The addition of harmful things to water causes _____ pollution.

(2) Water pollution may occur when _____ from ships are spilled into the ocean.

(3) Water pollution can be prevented by picking up_____ at the beach, lake and river.

(4) Water is most widely used for generating_____.

Q2. Choose the letter with the correct answer.

(1) Which of following would cause water pollution?

i. Throwing away rubbish into the river

ii. Pouring used oil down the drainage pipe

iii. Picking up rubbish on the beach

A. i and ii B. i and iii

C. ii and iii D. i, ii and iii

(2) We use detergents to wash dishes. What is the best way to prevent water pollution caused by the detergents?

A. Pouring it down the drain.

B. Throwing its empty bottle into the ocean.

C. Reducing the amount to use.

D. Throwing it away into the river.

Q3. Answer the following questions.

(1) Why is water important for our daily lives? Write down two reasons.

(2) How can we help prevent water pollution? Write down two ways.

Q4. Water is a natural home for many plants and animals. How will the fish living in the polluted water affect human health?

Water in our body

Water is one of the most important things for all living things to survive. Up to 60 percent of the human adult body weight comes from water. Babies and kids have more water than adults. For newborn babies, 78 percent of their weight is water.

A boy who has 40 kg of body weight has about 24 kg of water that is equivalent to forty eight 500 mL bottles of water.

Each day, we must take in a certain amount of water. Generally, an adult male needs about 3 litres per day while an adult female needs about 2.2 litres per day. All of the water a person needs does not have to come from drinking liquids, as some of this water is contained in the food we eat.

About 48 bottles of water (500 mL) is equivalent to the amount of water inside the boy whose body weight is 40 kg.

1 bottle of water (500 mL) contains 0.5 kg of water.
48 bottles times 0.5 kg is 24 kg of water.

Chapter Test

13. Water on the Earth

Q1

Complete each sentence with the correct word.

(1) Sources of water can be classified into _____ sources of water and _____ sources of water.

(2) _____ is any form of water that falls from clouds.

(3) Water pollution is the addition of _____ _____ into water.

Q2

Choose the letter with the correct answer.

(1) Which of the following shows the change of state of evaporation?

A. From gas to liquid.

B. From solid to liquid.

C. From liquid to gas.

D. From solid to gas.

(2) What is the function of clouds in the water cycle?

A. Clouds carry water from the ocean and drop it as rain.

B. Clouds fall down on Earth to cool the temperature.

C. Clouds prevent the heat from the sun to protect the fish in the ocean.

D. Clouds take in polluted water from the ocean and keep its water clean.

(3) Which is <u>not</u> a cause of water pollution?

A. Sewage

B. Compost

C. Rubbish

D. Oils from ships

(4) Which action can prevent water pollution?

A. Don't drink natural water because it might be dirty.

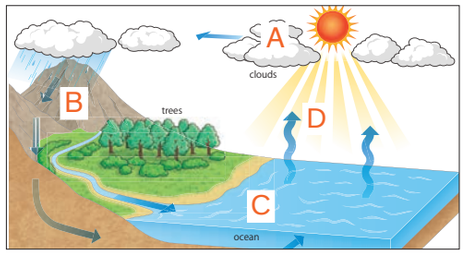
B. Throw away plastic bags into the river after shopping.

C. Throw cooking oils down the drain because it is liquid.

D. Use environmentally friendly household products.

Q3

For question (1) and (2), refer to the diagram below showing the water cycle.



(1) Which letter shows water condensing?

_____

(2) How can water vapour in air return to Earth?

_____

_____

Q4

(1) When you arrive at school on a rainy day, your rain hat is covered with water drops. At the end of the day, your rain hat is dry. What kind of change has taken place?

_____

(2) Grace put some ice in a glass and left them for a few minutes as shown on the right. After that, she observed droplets on the surface of the glass.
Where did the droplets come from?
And how are they formed?

_____

_____

Chapter 14

Structures and Movement of Human

14.1 Bones and Muscle

We can move our body freely. We can walk, throw a ball and lift things. How can we move our body? Let's investigate our body.

Lesson 1: "Our Bones"

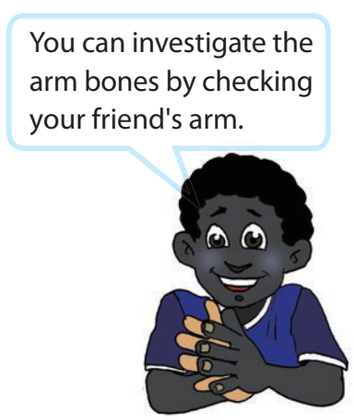
We have a lot of bones in our body. How do our bones help us? How do our bones work?

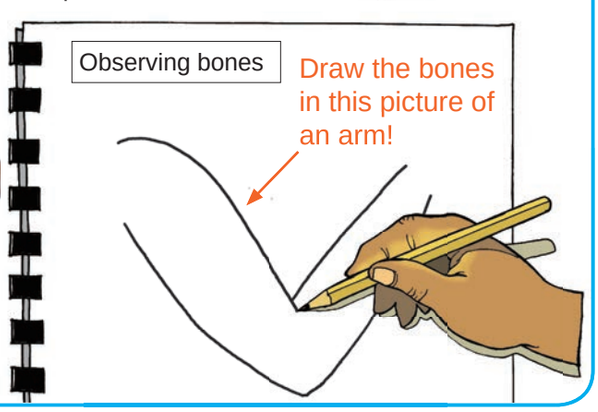
What are bones?

Activity : Observing bones

What to Do:

1. Draw a picture of an arm as shown below.
2. Touch and move your arm and predict how the bones are structured in your arm.
3. Draw the bones in the picture based on your prediction.
4. Share your ideas with your classmates. Talk about how the bones in the arm help us.

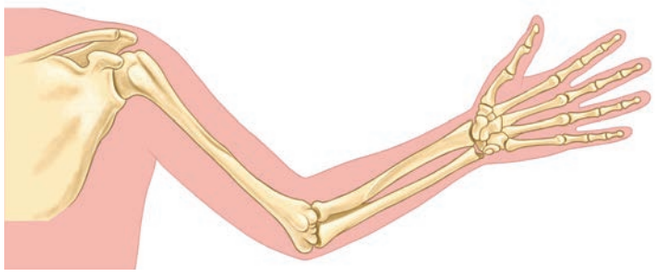




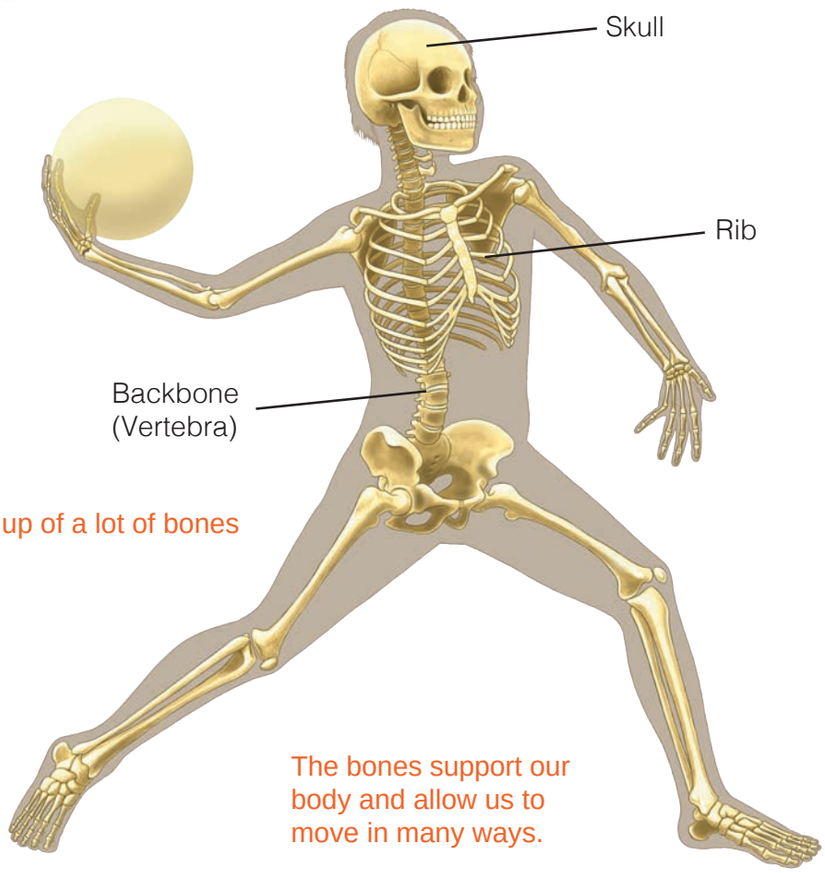
Summary

Our body is made up of a lot of **bones**. The adult human body has 206 bones. The bones are growing and changing all the time as we grow.

The bones support our body and give the body its shape. The bones also protect the organs in the body and help us move in many ways.



Bones in an arm



Our body is made up of a lot of bones

The bones support our body and allow us to move in many ways.

A group of bones that gives body shape and support, protects the organs inside the body and allows us to move in many ways is called the **skeletal system**. A **system** is a group working together to do a particular work. A group of bones forms our body to work together.

Lesson 2: "Bending Body Parts"

Our body is made up of a lot of bones. These bones help us to move in many ways.

Why can we bend our body?

Activity : Finding body parts that we can bend

What to Do:

1. Draw a table like the one shown below.

Body parts that we can bend

2. Find your body parts that you can bend.
3. Record the name of the body parts in the table.
4. Share your findings with your classmates.

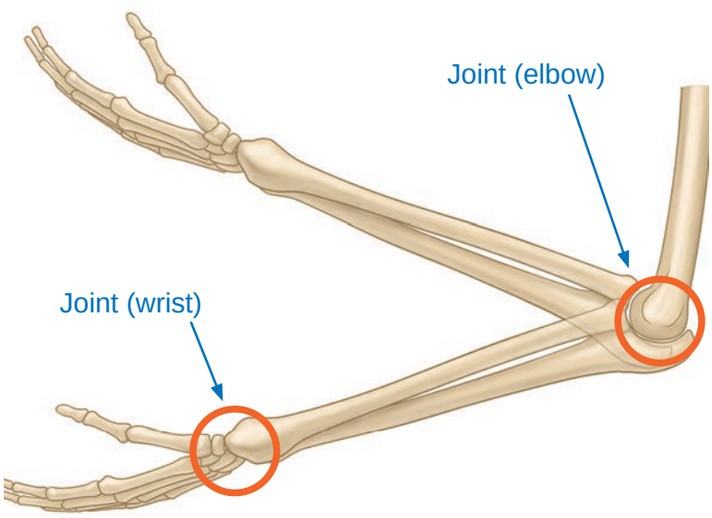
Discussion

How do the bones help us when we bend our body parts?

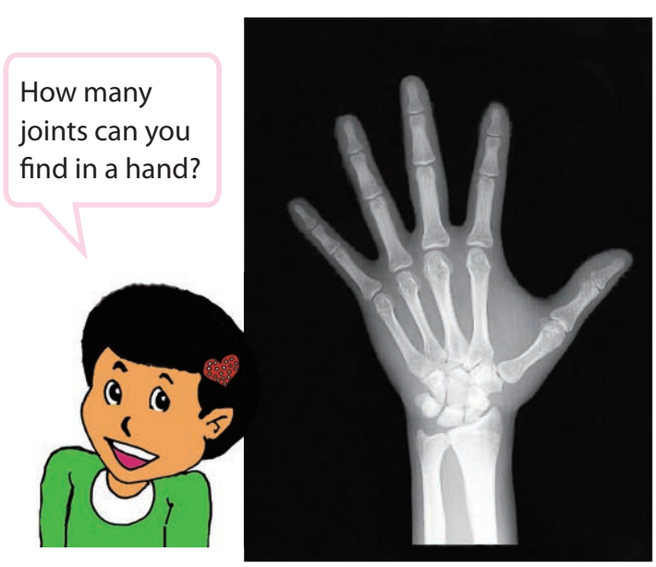
1. Think about the following questions:
   - Do we bend our bones when we bend our body parts?
   - If not, how are the bones arranged to bend our body parts?
2. Talk about your ideas with your classmates.

Summary

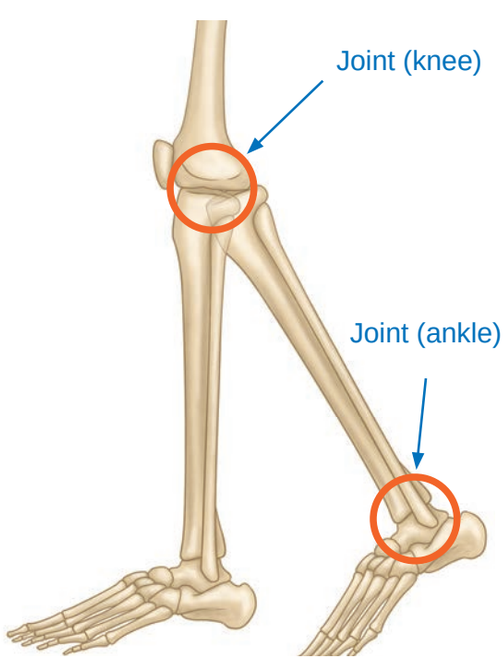
We can bend parts of our body where two bones join together. The place in the body where two bones meet is called a **joint**. For example, our knees and elbows are joints. Without the joints, it would not be possible to raise our hands or knees.



Joints in an arm



An X-Ray of a hand



Joints in a leg

Lesson 3: "Animals With or Without Bones"

People have a lot of bones in their bodies. How about animals? Do they have bones in their bodies?

Do all animals have bones?

Activity : Observing animals' bones

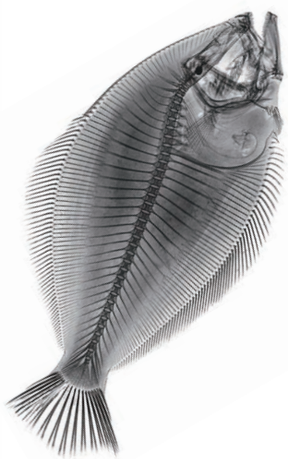
What to Do:

1. Draw a table like the one shown below.

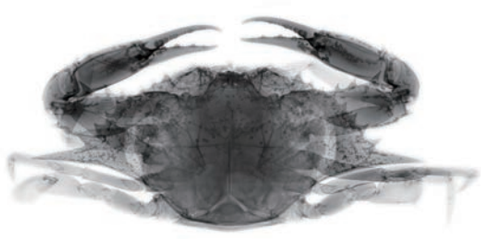
Animals	Your observation
Insect	
Crab	
Lizard	
Turtle	

2. Look at the X-ray of animals below and observe them to see if they have bones or not. Record your observation in the table.
3. Share your ideas with your classmates. Talk about animals with or without bones.


Lizard


Fish


Insect (beetle)

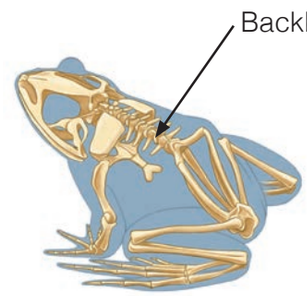

Crab

Summary

Some animals have bones but some do not have. Animals can be classified into two groups based on whether or not they have a backbone. A backbone helps to support their body.

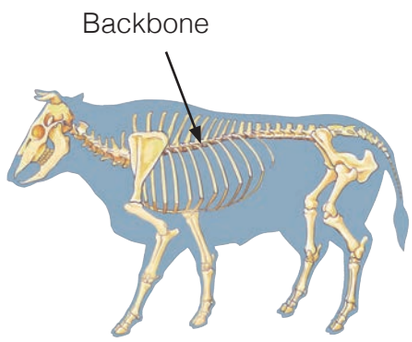
Animals with a Backbone

Fish, amphibians, reptiles, birds and mammals are animals with a backbone.

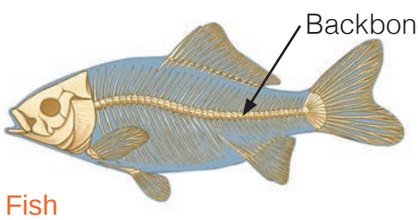


Amphibian (frog)

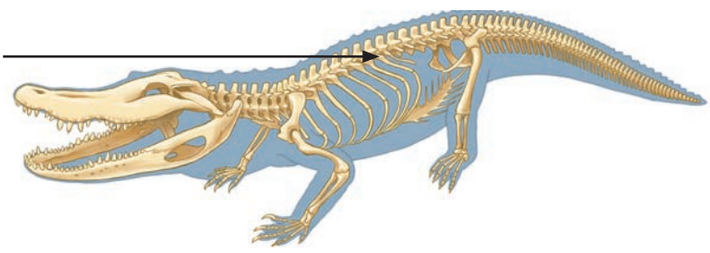
Bird (chicken)



Mammal (cow)



Fish


Reptile (crocodile)

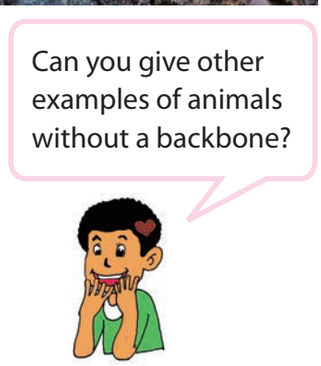
Animals without a Backbone

Most of the animals on the Earth do not have a backbone. Insects, crabs, spiders and earthworms are examples of animals without a backbone. Some animals live on land and some live in water.


Crab


Earthworm


Spider



Lesson 4: "Our Muscles"

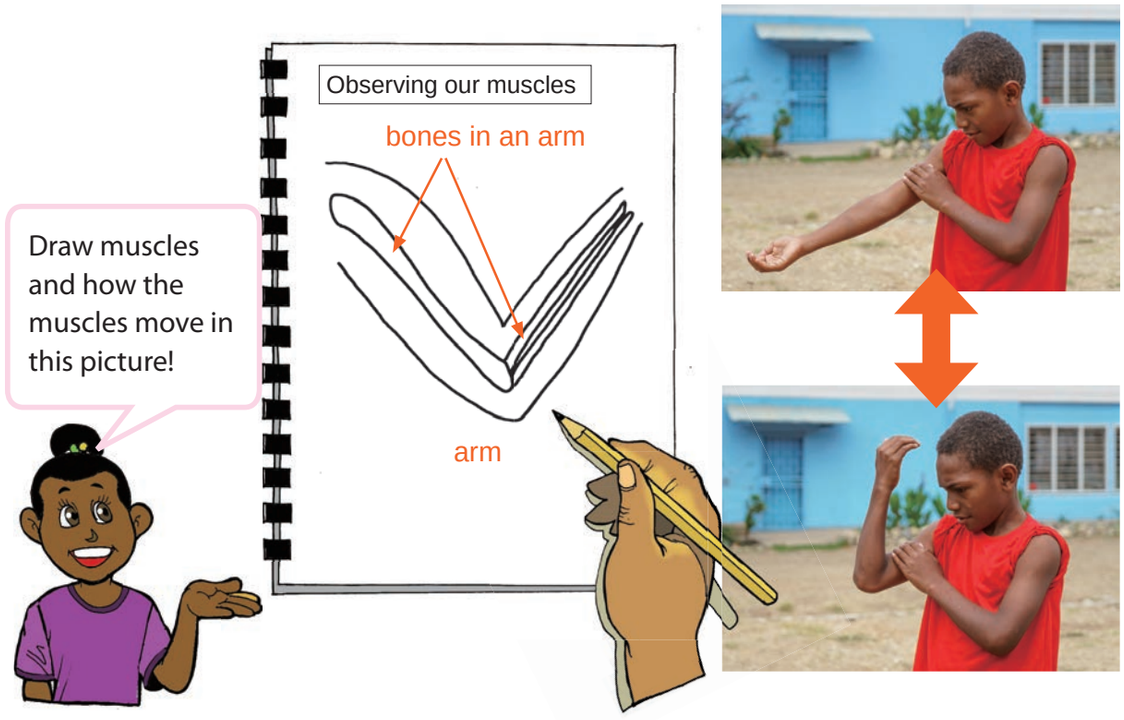
We have a lot of bones in our body. We also have muscles in the body. How do our muscles help us? How do our muscles work?

What are muscles?

Activity : Observing our muscles

What to Do:

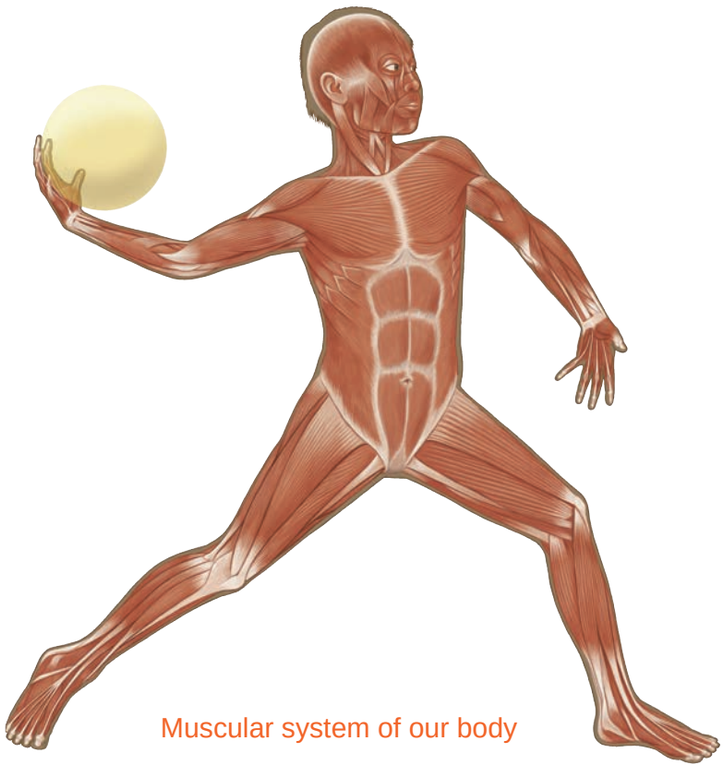
1. Draw the picture of an arm as shown below.
2. Straighten and bend your arm. Observe how the muscles move and where the muscles are in the arm.
3. Draw the muscles in the picture and describe how the muscles move based on your observation.
4. Share your ideas with your classmates. Talk about how muscles work.



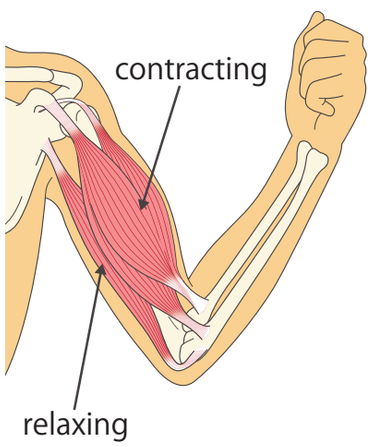
Summary

Our body is made up of **muscles**. The muscles are under our skin and they cover our bones. We have more than 600 muscles in our body. Muscles work by **contracting** and **relaxing**. When muscles contract, they get shorter and thicker. When muscles relax, they get longer and thinner. Muscles work together to help us move. Muscles help keep us upright. They also give our body the power to lift and push things. A group of muscles that make the parts of our body move is called the **muscular system**.

Exercise helps keep our muscles strong. If we do not use our muscles they can become weak.



Muscular system of our body



Movement of muscles

Exercise helps keep our muscles strong.

Lesson 5: "Moving Body Parts"

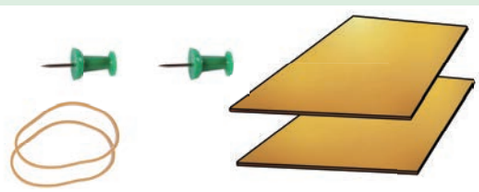
We have bones and muscles in our body. Bones and muscles help us move our body parts.

How do bones and muscles move our body parts?

Activity : Making a model arm

What We Need:

- cardboard, rubber bands, 2 drawing pins, tape

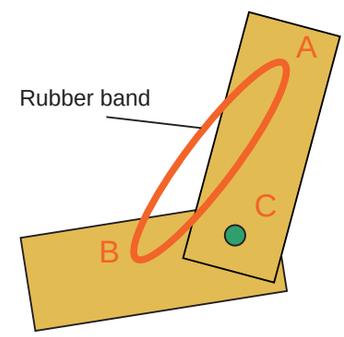


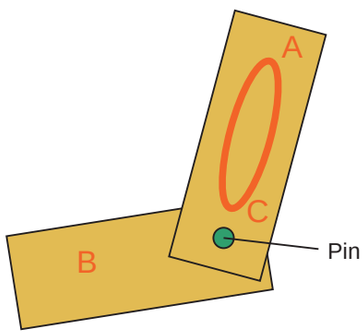
What to Do:

1. Draw a table like the one shown below.

	Your observation
Rubber band attached to A and B	
Rubber band attached to A and C	

2. Make a model of an arm with the cardboard and pins like the picture on the right.
3. Attach the rubber band in point A to B.
4. Bend and straighten the model of the arm. Observe what happens to the rubber band. Record your observation in the table.
5. Remove the rubber band and attach it to points A and C. Repeat Step 3.
6. Share your findings with your classmates. Talk about how bones and muscles help to move our arms.

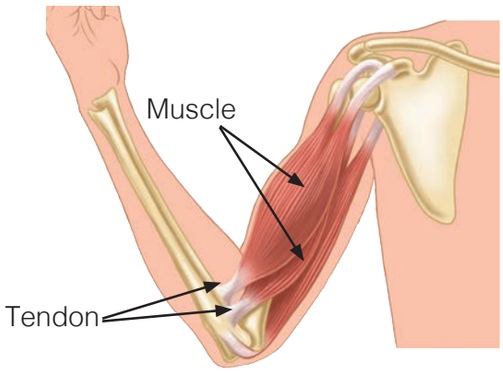




Result

If a rubber band is attached to points A and B, the rubber band is stretched when the model of the arm is stretched and it gets shorter when the model is bent. If the rubber band is attached to the points A and C, it does not change when the model is stretched or bent.

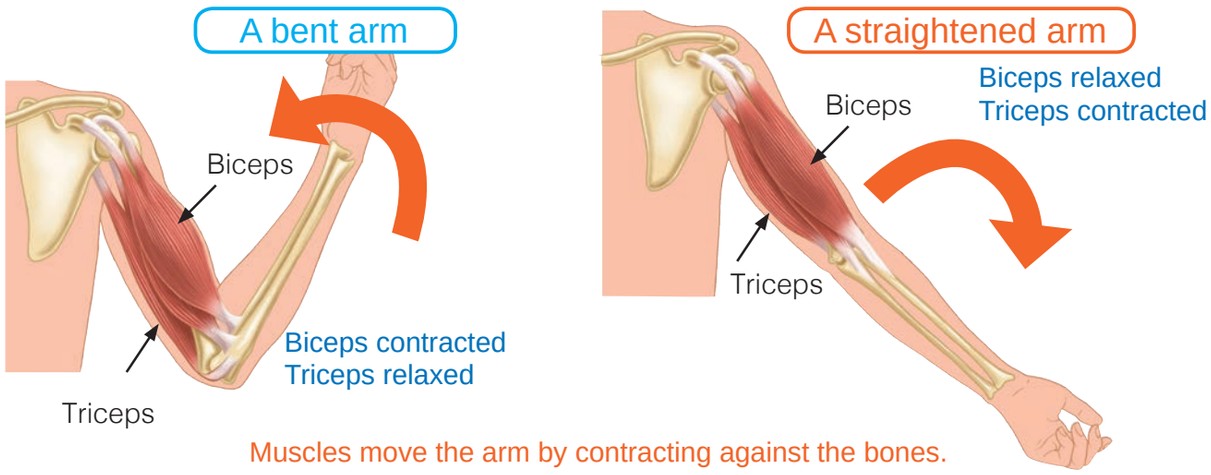
Summary



Structure of bones, muscles and tendons

The bones and muscles make our body move. Most of our muscles are attached to the bones with tendons. Tendons are like strong rubber bands. Muscles are attached at one end of one bone and at the other end of another bone.

Muscles move the body by contracting against the bones. By contracting, muscles pull on bones and allow the body to move. For example, the biceps and triceps are a pair of muscles in our arms. When the biceps contracts, it pulls on bones. This allows our arms to bend. When the triceps contracts, it pulls on bones. This allows our arms to straighten. When we bend our arms, biceps contracts and triceps relaxes. When we straighten our arms, triceps contracts and biceps relaxes.



Muscles move the arm by contracting against the bones.

Summary and Exercise

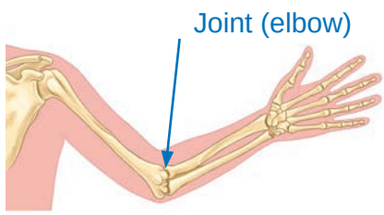
Summary 14.1 Bones and Muscle

Our Bones

- Our body is made up of a lot of bones.
- The bones give body shape, support and protect the organs inside the body, and allow us to move in many ways.
- A group of bones that forms our body is called the skeletal system.

Bending Body Parts

- The body parts where two bones join together is called the joint. We can bend the parts of our body at the joints.



Animals With or Without Backbones

- Animals can be classified into two groups according to whether they have a backbone or not.

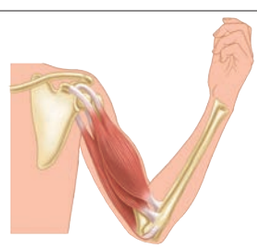
Our Muscles

- Our muscles cover the bones and are under the skin in our body.
- Muscles work by contracting and relaxing.
- A group of muscles in our body is called the muscular system.

Moving Body Parts

- Most of our muscles are attached to bones with tendons.

  When muscle contract against the bone, they pull on bones and allow the body to move.

The biceps and triceps are pair of muscles in our arms	
When arm is bent	When arm is straighten
	
- Biceps contracted - Triceps relaxed	- Biceps relaxed - Triceps contracted

Summary and Exercise

Exercise 14.1 Bones and Muscle

Q1. Complete each sentence with the correct word.

(1) The _____ give the body shape and support our body.

(2) Our bones are arranged with _____ between two bones to allow our body parts to bend.

(3) Fish, amphibians, reptiles, birds and mammals are all animals _____ backbones.

(4) Spiders, crabs, worms and slugs are all animals _____ backbones.

Q2. Choose the letter with the correct answer.

(1) According to the diagram below, what happens to the bicep and tricep muscles when the arm is straightened?

A. Biceps relax and triceps contract.

B. Biceps and triceps relax.

C. Triceps relax and biceps contract.

D. Triceps and biceps contract.

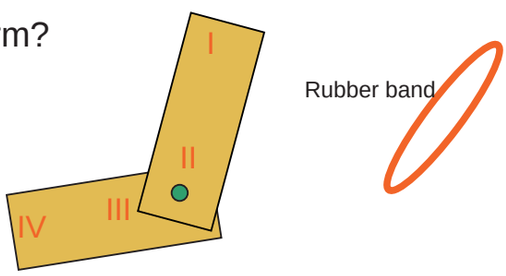
(2) Where will the rubber band be connected to so that the model of arm will move just like the real arm?

A. I to II

B. II to IV

C. I to IV

D. II to III



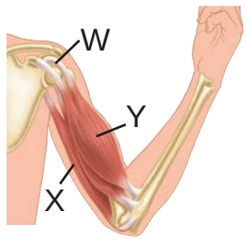
Q3. Study the picture on the right and answer the questions below.

(1) What is the name of the part labeled 'W'?

(2) What is the name of the muscle labeled 'X'?

(3) What the name of the muscle labeled 'Y'?

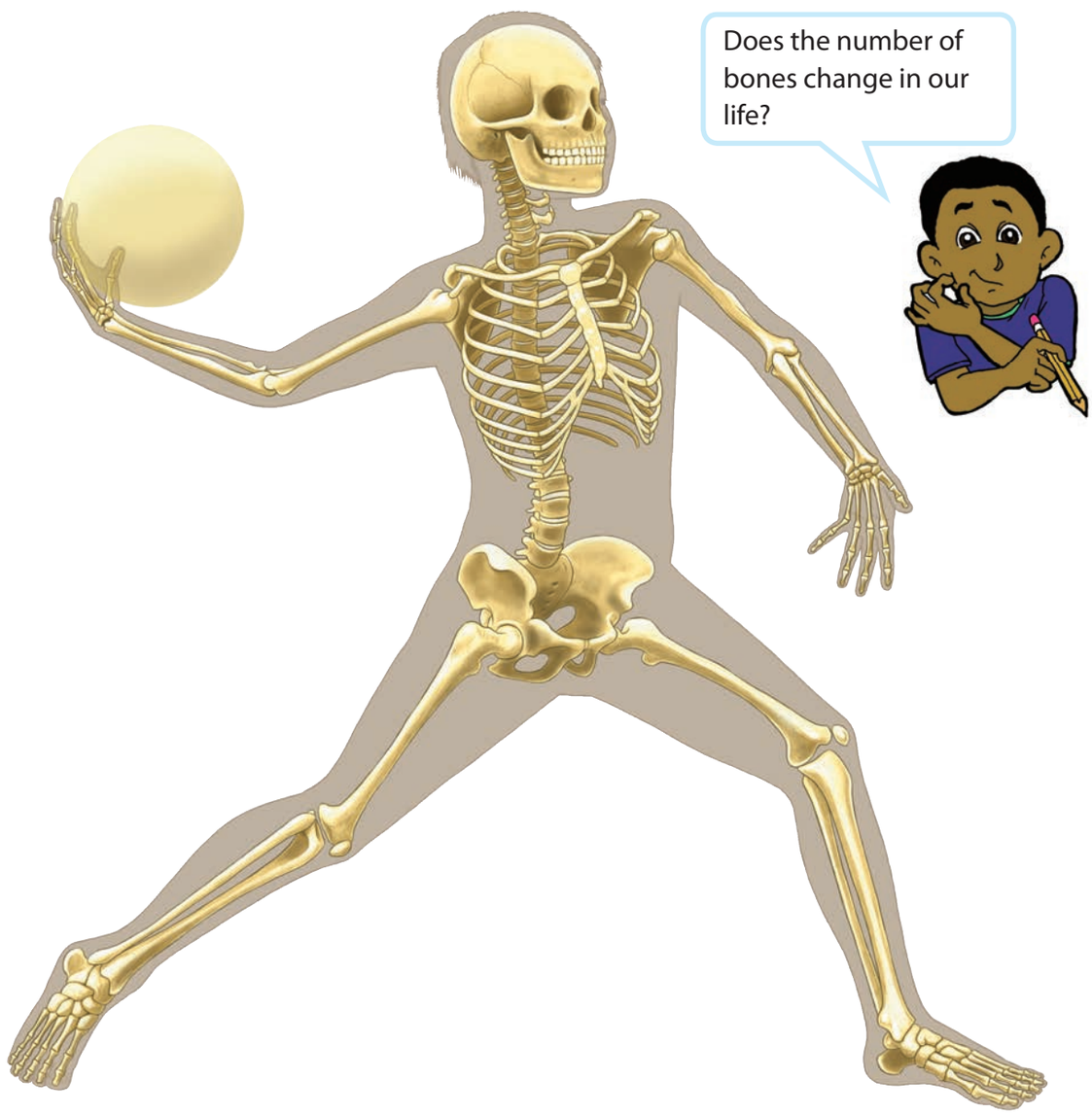
(4) When the arm is bent as shown in the diagram, how do the muscles labeled X and Y move?



Q4. What would happen if your body did not have a skeletal system?

Do the number of bones change in our life?

We learnt that an adult human body has 206 bones. Do you think the number of bones change through our lives? In fact, a baby's body has about 300 bones at birth. It's more than that of an adult. Do we lose some bones? As the baby grows, some bones join together to make one big bone. Eventually, these bones grow together to form 206 bones that an adult has. By the time you are about 25 years old, this process will be completed. After this happens, there can be no more changes.



Chapter Test

14. Structure and Movement of Human

Q1

Complete each sentence with the correct word.

(1) The _____ protect the organs inside the body and allow us to move in many ways.

(2) When we raise our hands, which joint do we bend _____.

(3) If we don't use our _____, they can become weak. To keep them strong, we need to exercise.

Q2

Choose the letter with the correct answer.

(1) Which of these animals has a backbone?

A. Spider
B. Crab
C. Frog
D. Worm

(2) Which sentence is true about the tendon?

A. Muscles are attached at two ends of one bone with a tendon.
B. Muscles are attached to different bones with tendons.
C. Bones are attached to other bones with tendons.
D. Muscles are attached to other muscles with tendons.

(3) Which sentence is <u>not</u> true about the bones?

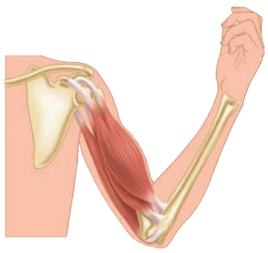
A. The adult human body has 206 bones.
B. The bones are hard and do not change during a person's life time.
C. The bones allow us to move in many ways.
D. Skeletal system is a group of bones that forms our body.

(4) Which of following is <u>not</u> an example of a joint?

A. Tongue
B. Wrist
C. Knee
D. Elbow

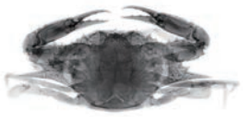
Q3

(1) The picture on the right shows the changes of arm muscles when you bend your arm. Describe what happens to your bicep and tricep muscles.



_____

(2) Observe the two pictures on the right. Describe the differences of their skeleton between the crab and lizard.



Crab

Lizard

_____

_____

_____

(3) According to the 'hand x-ray' picture on the right, how many finger joints are there?

_____

Q4

(1) Why is it better for an adult's skull to have immovable joints and not movable joints.

_____

_____

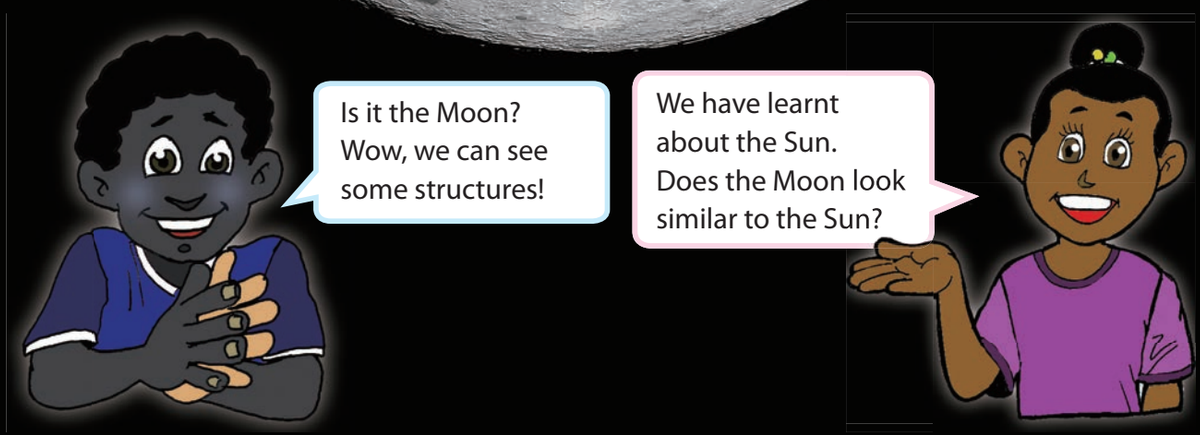
(2) What would happen if the muscles in our body do not contract?

_____

_____

Chapter 15

The Moon



15.1 Moon in the Sky

Lesson 1: "Moon"

Look at the night sky. What do you see? We can see the Moon and stars in the sky.

What is the Moon?

Activity : Surface of the Moon

What to Do:

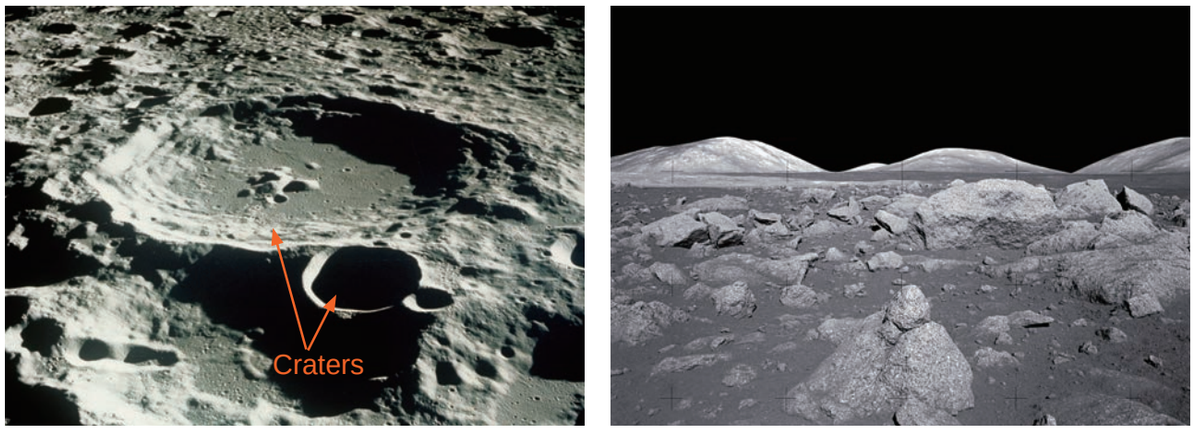
1. Draw a table like the one shown below.

Your findings

2. Look at the picture of the Moon on the left and below.
3. Write your findings about the surface of the Moon in the table.
4. Share your findings with your classmates. Talk about what you observed.

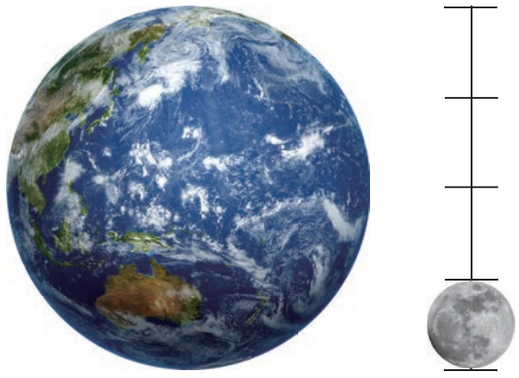
Summary

The Moon is a space object. It is a large sphere made of rock. The surface of the Moon is covered with **craters**, hills, mountains and valleys.



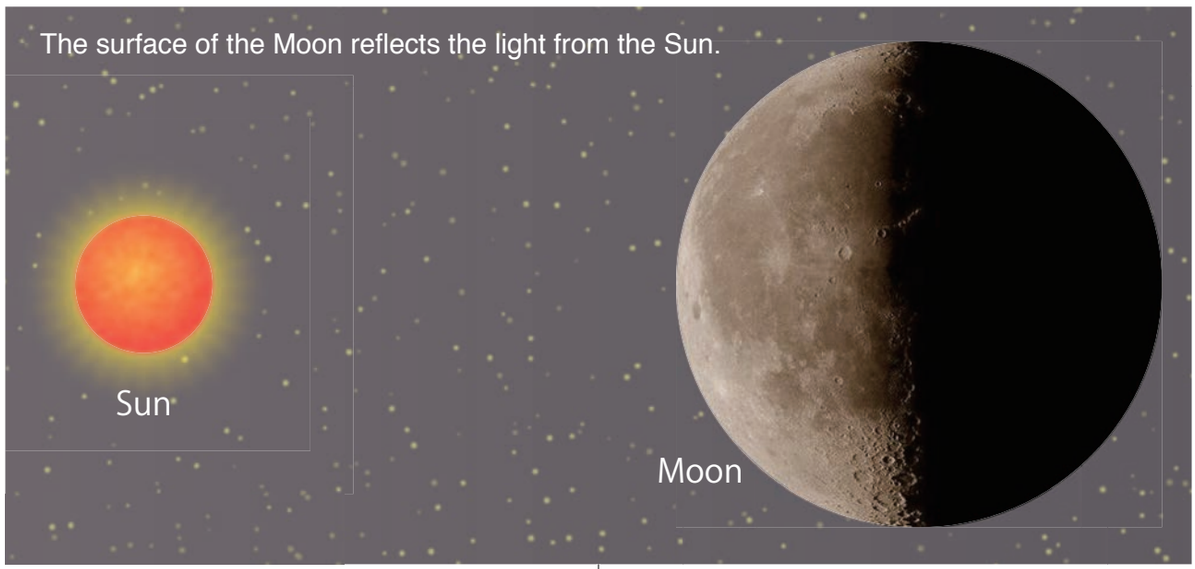
We can see craters, hills, mountains and valleys on the surface of the Moon.

The Moon is smaller than the Earth. It is about a quarter of the Earth's diameter. The Moon appears quite large because it is close to the Earth.



The Moon is a quarter of the diameter of the Earth.

Unlike the Sun, the Moon does not make its own light. We can see the Moon because it reflects the light from the Sun.



Lesson 2: "Movement of the Moon in the Sky"

When we look at the Moon at different times of the day, we can see it at different location.

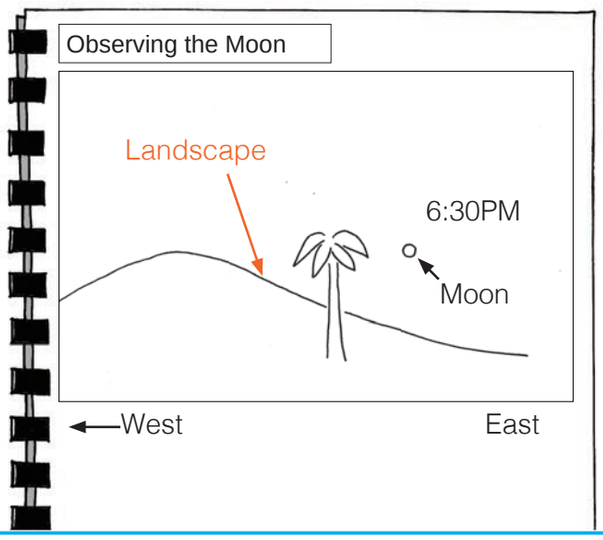
How does the Moon move in the sky?

Activity : Observing the Moon

What to Do:

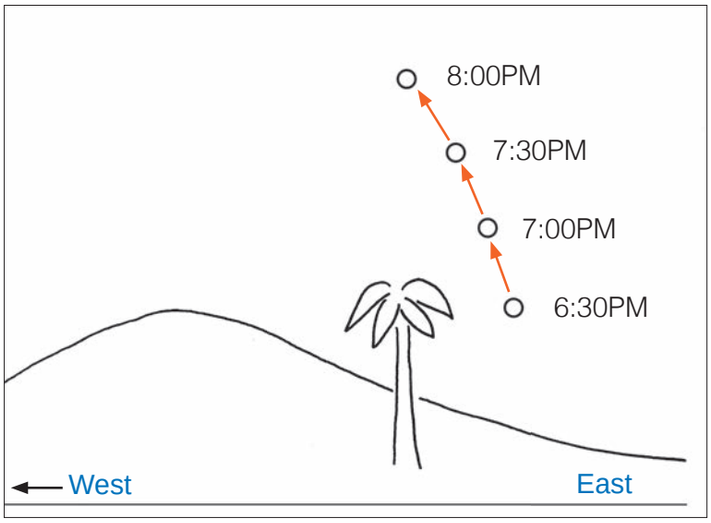
1. Go outside. Make an X on the ground.
2. Check the direction of North, South, East and West with a compass.
3. Stand at X and draw the landscape you see in your exercise book.
4. Observe the Moon and record the position of the Moon and the time like the one shown below.
5. Repeat step 3 and 4 three more times every 30 minutes during the day.
6. Share your ideas with your classmates. Talk about how the Moon moves.

When you observe the moon at night, you need adult supervision.

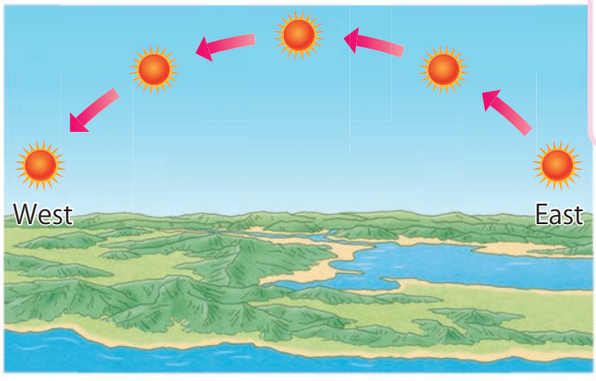


Result

The Moon changes its positions in the sky as time goes by.



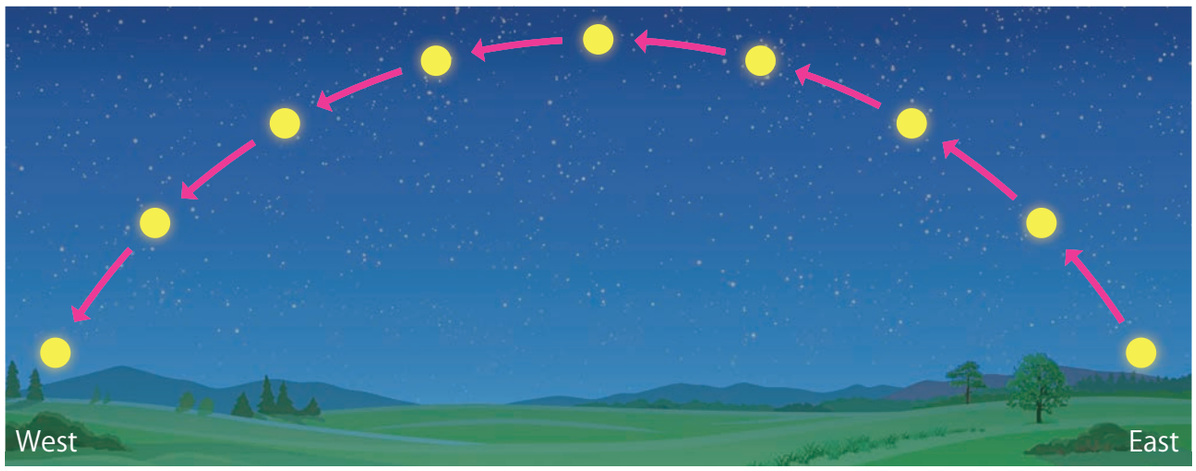
Examples of the movement of the moon



The movement of the sun

Summary

The Moon rises into the sky in the East, moves across the sky at its highest position and sets in the West.



The Moon seems to move from east to west during the day.

Lesson 3: "Changing Moon"

When we observe the Moon in the sky, the moon's shape looks a little different every night.

How does the Moon seem to change its shape?

Activity : Changing shapes of the Moon

What to Do:

1. Draw a table like the one shown below.

Date					
Shape of the moon					

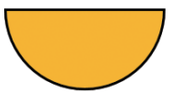
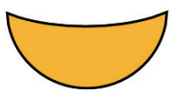
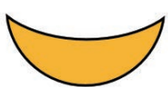
2. Look at the night sky and observe the Moon.
3. Write the date and draw the shape of the Moon in the table.
4. Repeat Steps 2 and 3 for five days.
5. Share your findings with your classmates.

Let's compare your observation with what your classmates observed and talk about how the Moon changes.

You must observe the Moon with adults at night.

Result

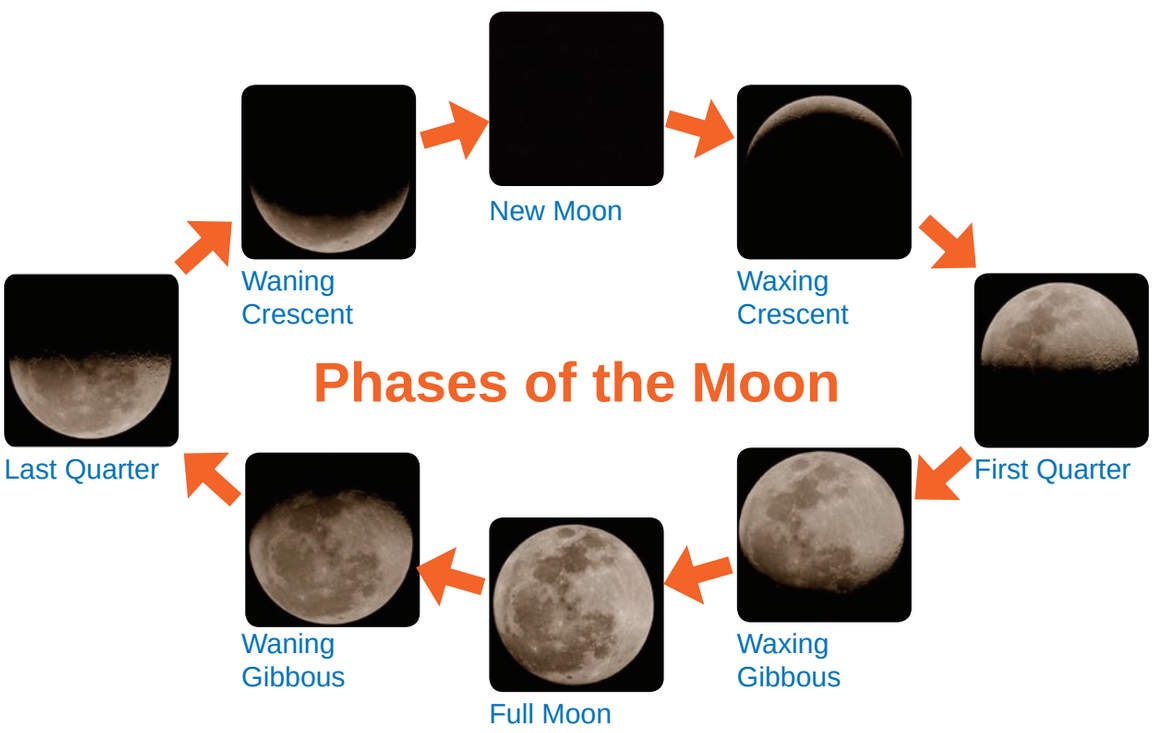
The Moon seems to change its shape every night.

Date	10th Oct	11th Oct	12th Oct	13th Oct	14th Oct
Shape of the moon					

Example of results from observations on the shape of the Moon.

Summary

The Moon seems big and round on some nights. On other nights, it looks small and half round-shaped. The Moon does not change its shape, but the bright part of the Moon changes its shape every night. The changing shapes of the bright part of the Moon that we see are called **phases of the Moon**. There are different phases of the Moon. The phases repeat every 29.5 days.



Summary and Exercise

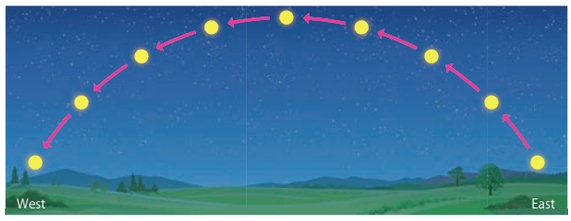
Summary 15.1 Moon in the Sky

Moon

- ☑ The moon is a space object. It is a large sphere made of rock.
- ☑ The surface of the moon is covered by craters, hills, mountains and valleys.
- ☑ The moon is smaller than the Earth and does not make its own light.
- ☑ The moon reflects light from the sun.

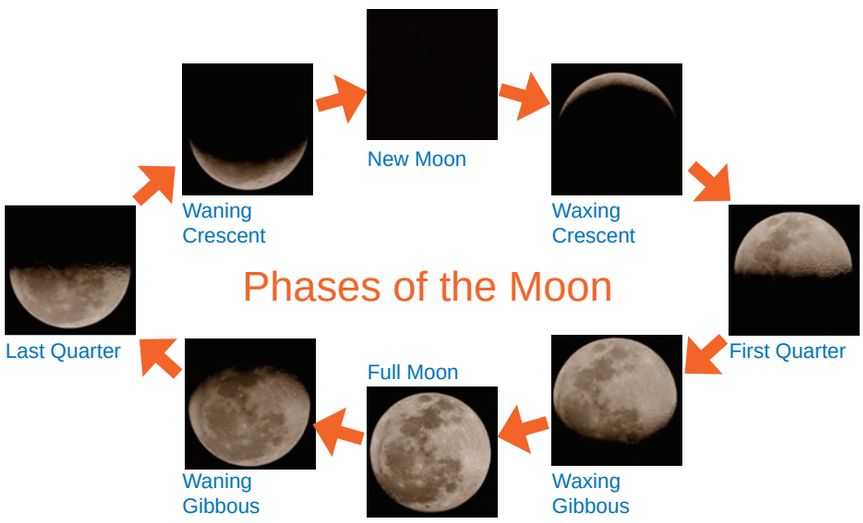
Movement of the Moon in the Sky

- ☑ The moon changes its position in the sky as time goes by.
- ☑ The moon rises into the sky in the East, moves across the sky and sets in the West during the day.



The Changing Moon

- ☑ The moon does not change its shape. The bright part of the moon changes its shape every night.
- ☑ The bright part of the moon are called **phases of the moon**. The following diagrams show the different phases of the moon.



Summary and Exercise

Exercise 15.1 Moon in the Sky

Q1. Complete each sentence with the correct word.

(1) The_____ is the closest space object to the Earth, that is a large sphere made of rocks.

(2) The changing shapes of the brighter part of the moon are called_____ of the moon.

(3) The moon rises in the_____, moves across the sky and sets in the_____.

Q2. Choose the letter with the correct answer.

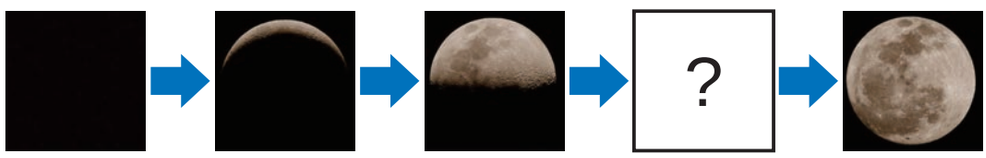
(1) Look at the picture on the right and answer the question.

What is the name of the round shaped structure on the moon surface?

A. Ocean C. Valley

B. Crater D. Lake

(2) What phase of the moon will come next in the sequence shown below?



A. B. C. D.

Q3. Answer the following questions.

(1) What is the name of the last moon phase before the new moon?

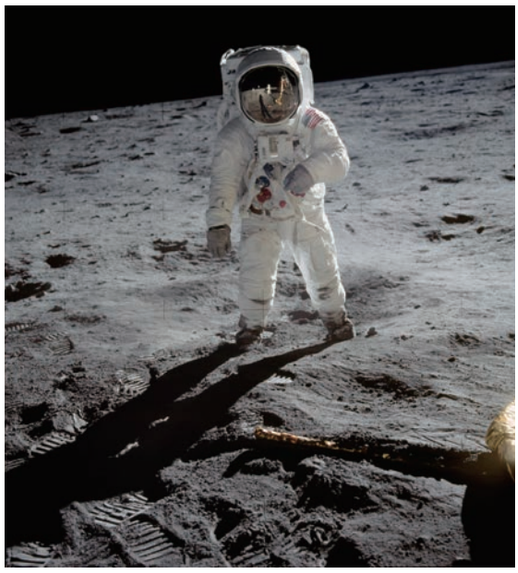
(2) Why does the moon shine?

(3) How many days does it take for the phases of the Moon to repeat?

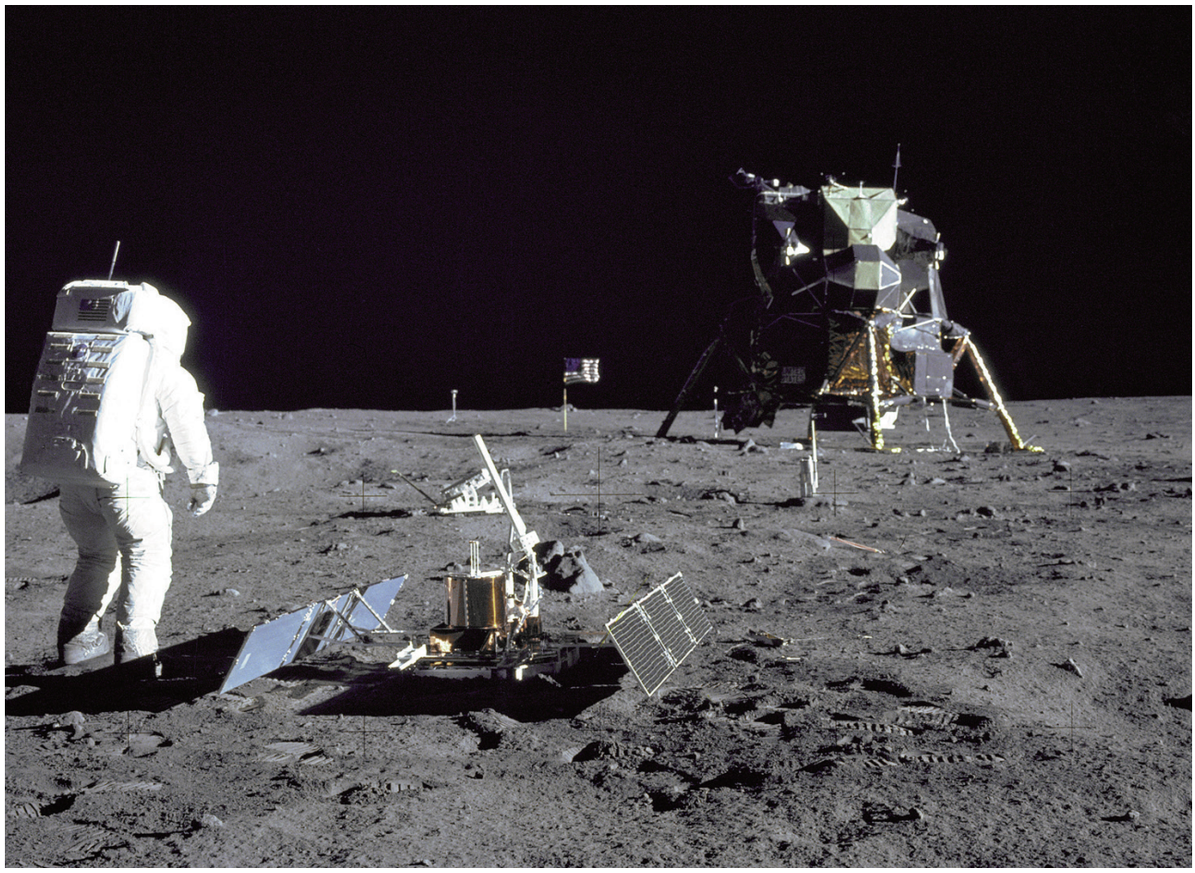
Q4. What is the similarity between the Moon and the Sun's movement in the sky?

Standing on the Moon

Is there any person who has stood on the Moon in human history? The answer is "yes".



Apollo 11 was the first mission organised to send people to the Moon. On July 20, 1969, two American astronauts became the first humans to land on the Moon's surface. Neil Armstrong was one of the astronauts. The moment he set foot onto the moon and took the first step, he said “That’s one small step for man and one giant leap for mankind”.



Astronaut and space craft on the Moon

Chapter Test

15. The Moon

Q1

Complete each sentence with the correct word.

(1) The Moon is a_____object.

(2) The surface of the Moon is covered with_____, hills, mountains and valleys.

(3) The Moon reflects the light from the_____.

Q2

Choose the letter with the correct answer.

(1) What is the Moon made of?

A. Water
B. Rocks
C. Air
D. Plants

(2) From what direction does the Moon seem to move in the sky during the day?

A. From east to west
B. From west to east
C. From north to south
D. From south to north

(3) How often can a full Moon be seen?

A. Once a year
B. Once each session of the year
C. About once each month
D. About once each week

(4) How many days does the Moon take to orbit the Earth?

A. 27days
B. 28 days
C. 29.5 days
D. 30 days

Q3

(1) Dave observed the night sky and noticed that the Moon appears quite large. Why does the moon appear quite large?

_____

(2) What is the name of the Moon phase shown in the diagram on the right?

_____

(3) Which of following letters is the correct order of phases of the Moon?

1. 
New Moon

2. 
Full Moon

3. 
Waning Crescent

4. 
Last Quarter

A. 1 ⇒ 3 ⇒ 4 ⇒ 2
B. 1 ⇒ 4 ⇒ 2 ⇒ 3
C. 2 ⇒ 1 ⇒ 3 ⇒ 4
D. 2 ⇒ 4 ⇒ 3 ⇒ 1