

تم تحميل هذا الملف من موقع المناهج الإماراتية



تجميع أسئلة وفق الهيكل الوزاري منهج انسابير

موقع المناهج ← المناهج الإماراتية ← الصف السادس ← علوم ← الفصل الأول ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2024-10-31 17:47:37

ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي للمدرس

المزيد من مادة
علوم:

التواصل الاجتماعي بحسب الصف السادس



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف السادس والمادة علوم في الفصل الأول

الهيكل الوزاري الجديد المسار العام منهج انسابير

1

اختبار القياس الدولي IBT متبوع بالإجابات

2

حل مراجعة الدرس الثاني surface s'earth on Water منهج انسابير

3



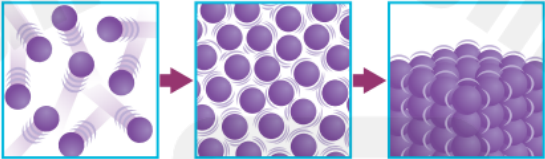
مراجعة الدرس الثاني surface s'earth on Water منهج انسابير

4

حل مراجعة الوحدة الأولى منهج انسابير

5

Grade 6 General Science EOT1 Practice Questions

No.	Example
1	 ENGINEERING Connection Investigate how thermometers use thermal contraction and thermal expansion to measure temperature.
2	 COLLECT EVIDENCE How could models of the particles in the wood and metal blocks show why one felt colder than the other?
3	<p>Examine the model below. The particles are undergoing a change in energy.</p>  <p>4. Which statement best describes what is taking place in the images?</p> <ul style="list-style-type: none"> A The kinetic energy of the particles on the right is the greatest of the three images of particles. B The particles in the middle have more kinetic energy than the particles on the right. C The particles in the middle have less space between them than the particles on the left, which means they have more kinetic energy. D Energy was added to the particles on the left to give them more energy than the particles in the middle.
4	<p>EXPLAIN THE PHENOMENON</p> <p>Kitchenware is made of many different types of materials. Have you ever thought about how those different materials transfer thermal energy? Use your ideas about kitchenware to make a claim about what affects how a material transfers thermal energy.</p>

5



THREE-DIMENSIONAL THINKING

You can bake food in either a metal pan or oven safe glass. Which would require more **energy** to heat up? Which would cool down the fastest? Explain your reasoning.

6

1. **Relate** kinetic energy to the speed of particles.

No speed	→	_____ kinetic energy
Greater mass	→	_____ kinetic energy
Greater speed	→	_____ kinetic energy

Model each statement above. Model the first statement as solid particles, the second statement as liquid particles, and the last statement as gas particles.



LESSON 2 LAUNCH

What's the Difference?



Five friends were talking about the differences among solids, liquids, and gases. They each agreed that the differences have to do with the particles in each type of matter. However, they disagreed about which differences determine whether the matter is a solid, liquid, or gas. This is what they said:

- Gwyneth:** I think it has to do with the number of particles.
George: I think it has to do with the shape of the particles.
Hoda: I think it has to do with the size of the particles.
Natalie: I think it has to do with the movement of the particles.
William: I think it has to do with how hard or soft the particles are.

With whom do you agree most? _____ Explain why you agree with that friend.



THREE-DIMENSIONAL THINKING

In the thermogram on the right, how do conduction and radiation **explain** the **energy** transfers occurring?



What's happening here?

9



COLLECT EVIDENCE

How does radiation help explain the direction of thermal energy transfer between the toast and the environment?

10



3. A scientist was working with substance Y. Which of the following does not represent an increase in thermal energy?
- A The temperature of the substance rose by 10°C .
 - B The volume of the substance increased by 10 mL.
 - C The mass of the substance increased by 10 g.
 - D The substance changed from a liquid into a solid.

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Real-World Connection

4. **Explain** Think of a time that you noticed a change of state. Explain what happened using the terms *temperature*, *particle motion*, and *energy*.

5. **Compare** the amount of thermal energy required to melt a solid with the amount of thermal energy released when the same liquid becomes a solid.

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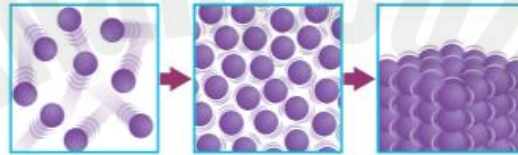


Three-Dimensional Thinking

Some students want to demonstrate thermal expansion. They devise the following method: A large black balloon is taken to a shady area and filled with cool air. The balloon is then taken to a bright, sunny location. After a short time, the balloon begins to expand.

3. What explanation does this investigation verify?
- A A balloon filled with cool air will rise into the atmosphere.
 - B As particles gain energy, the material takes up more space.
 - C The air inside the balloon lost energy.
 - D The sunlight caused the air in the balloon to contract.

Examine the model below. The particles are undergoing a change in energy.



4. Which statement best describes what is taking place in the images?
- A The kinetic energy of the particles on the right is the greatest of the three images of particles.
 - B The particles in the middle have more kinetic energy than the particles on the right.
 - C The particles in the middle have less space between them than the particles on the left, which means they have more kinetic energy.
 - D Energy was added to the particles on the left to give them more energy than the particles in the middle.

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THREE-DIMENSIONAL THINKING

You can bake food in either a metal pan or oven safe glass. Which would require more **energy** to heat up? Which would cool down the fastest? Explain your reasoning.

14



COLLECT EVIDENCE

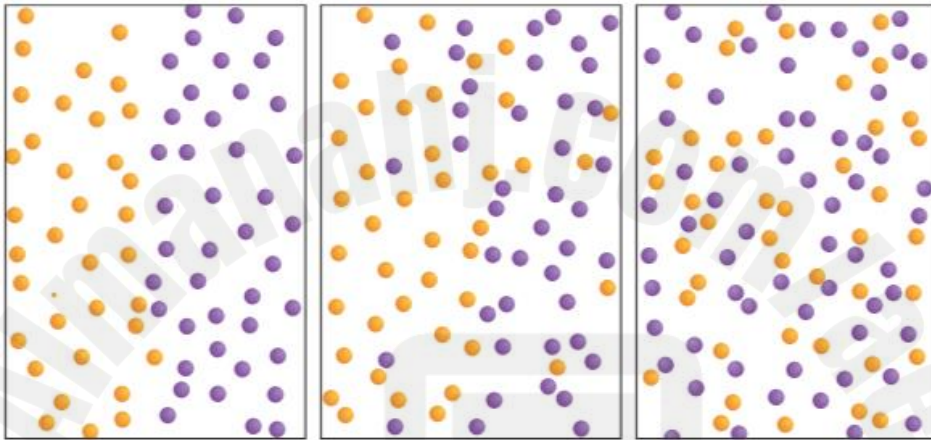
How does the type of material in the kitchenware affect how it transfers thermal energy?

15

Radiation Another process that transfers energy is radiation. **Radiation** is the transfer of thermal energy from one material to another by electromagnetic waves. All matter, including the Sun, fire, and even you, transfers thermal energy by radiation. Warm objects emit more radiation than cold objects do.

What is **Radiation**?

16



What **process** does the image above represent?

17



THREE-DIMENSIONAL THINKING

Add motion lines to the liquid particles **model** on the right to show they are moving faster than the liquid particles on the left. Circle the model that has more kinetic **energy**.



LESSON 1 LAUNCH

What happened to the puddle?



Four friends noticed a large puddle on the sidewalk when they walked to school in the morning. When they walked home, the puddle was gone. They wondered what happened to the water that was in the puddle.

- Desi:** I think the water soaked into the bricks.
Trudi: I think the water went up into the clouds.
Max: I think the water is in the air around us.
Carli: I think the Sun changed it into something else.

Circle the student you most agree with. Explain why you agree with that student.

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THREE-DIMENSIONAL THINKING

On the figure below, **model** the process that changes liquid water to water vapor. Label the transfer of **energy** that takes place during this process.



How does **energy** from the Sun drive the cycling of **matter**?

LIGHT



Low albedo



High albedo

The temperature of the atmosphere is greatly affected by the albedo of the hydrosphere, geosphere, and biosphere. The more reflective a surface is, the less it absorbs solar energy.

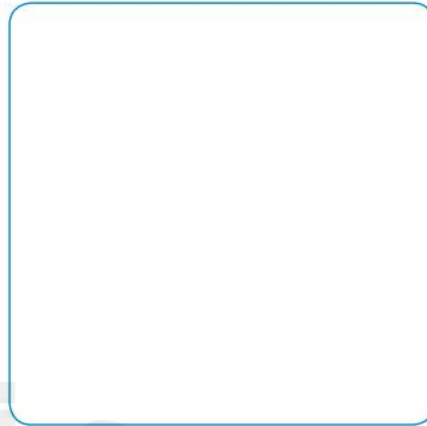
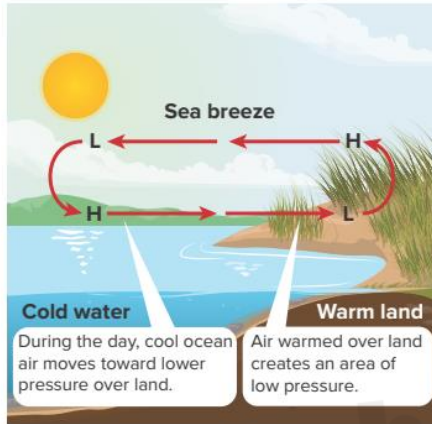
[GO ONLINE](#) for additional opportunities to explore!

Want to learn more about albedo? Then perform one of the following activities.

- Read** about how reflectivity is an important factor in determining the temperature at different locations on Earth in the **Scientific Text** *Albedo*. **OR** **Survey** an area around your home to explore how human activity can change the albedo of areas in the **Investigation** *Local Reflectivity*.

21

1. Using what you learned in the animation, model the formation of a **land breeze** in the space below.



2. Predict whether a sea breeze could occur at night. Explain.

22



COLLECT EVIDENCE

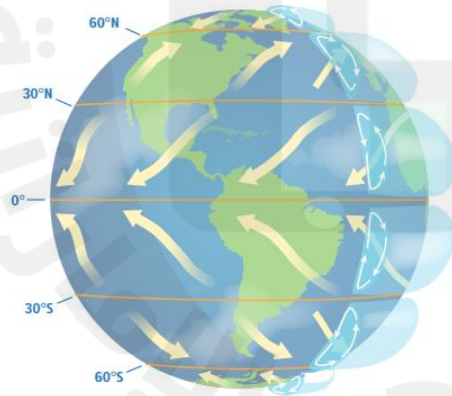
What causes wind to blow?

23

INVESTIGATION

It's a Blowin'

1. Label the image with the **global wind** systems based on the descriptions below.





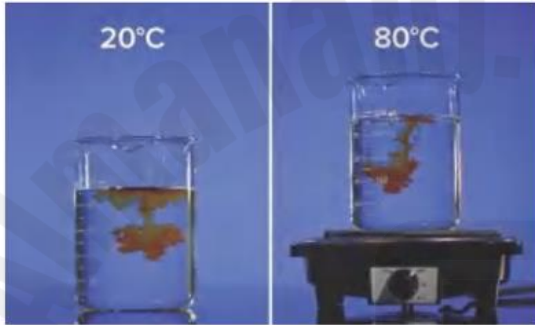

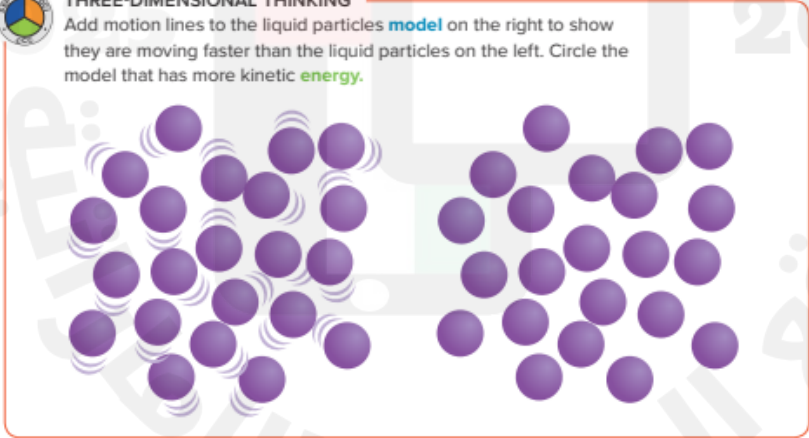
- The **polar easterlies** are cold winds that blow from east to west near the North Pole and the South Pole. Polar easterlies begin as dense polar air that sinks.
- The **prevailing westerlies** are steady winds that flow from west to east between latitudes 30°N and 60°N, and 30°S and 60°S.
- The **trade winds** are steady winds that flow from east to west between 30°N latitude and 30°S latitude.

24



COLLECT EVIDENCE

What are the **global wind** systems?

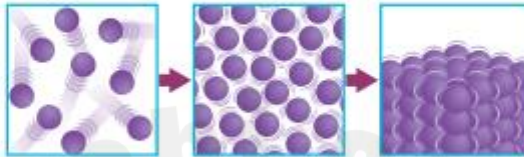
25	 <p>THREE-DIMENSIONAL THINKING</p> <p>Imagine you are entering a large, air-conditioned building on a hot summer day. As you open the door, you feel cool air rushing past you out of the building. Model why you think this happens in the space below.</p>
26	 <p>COLLECT EVIDENCE</p> <p>How does the wind influence the movement of water?</p>
27	<p>What can you conclude about how adding energy to the liquid on the right will affect the speed of the particles?</p> 
28	 <p>THREE-DIMENSIONAL THINKING</p> <p>Add motion lines to the liquid particles model on the right to show they are moving faster than the liquid particles on the left. Circle the model that has more kinetic energy.</p> 
29	

1. **Relate** kinetic energy to the speed of particles.

No speed → _____ kinetic energy
Greater mass → _____ kinetic energy
Greater speed → _____ kinetic energy

30

Examine the model below. The particles are undergoing a change in energy.



4. Which statement best describes what is taking place in the images?

- A The kinetic energy of the particles on the right is the greatest of the three images of particles.
- B The particles in the middle have more kinetic energy than the particles on the right.
- C The particles in the middle have less space between them than the particles on the left, which means they have more kinetic energy.
- D Energy was added to the particles on the left to give them more energy than the particles in the middle.

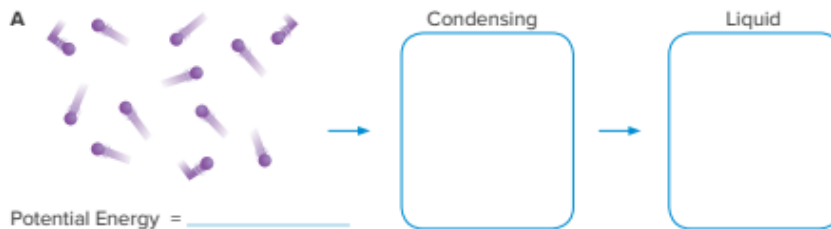
31



THREE-DIMENSIONAL THINKING

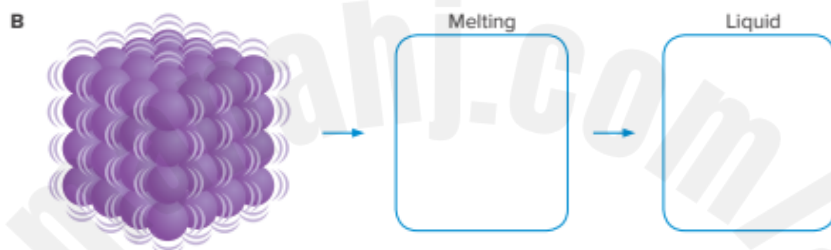
For each example:

1. Complete the **model** of the particles.
2. Indicate how potential **energy** is changing (increasing or decreasing).
3. Indicate how the attractive forces are changing (increasing or decreasing).



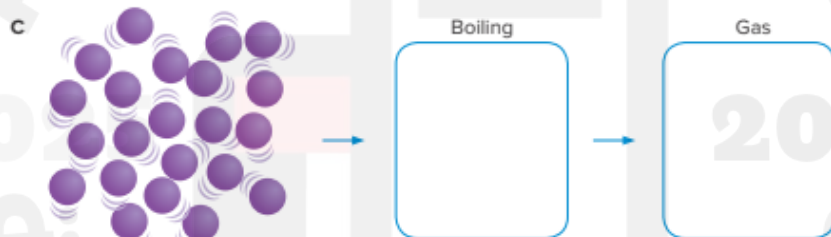
Potential Energy = _____

Attractive Forces = _____



Potential Energy = _____

Attractive Forces = _____



Potential Energy = _____

Attractive Forces = _____

32



Janey had a bowl of hot soup for lunch. The soup was so hot she decided to put it in the refrigerator for a few minutes to cool it. What happened to cool the soup so Janey could eat it?

- A. The heat moved from the soup to the cold air in the refrigerator.
- B. The cold in the refrigerator moved into the hot soup.
- C. No heat or cold moved out of or into the soup. It just cooled off.

Circle the answer that best matches your thinking. Explain your thinking. Describe what happened to cool the soup down.

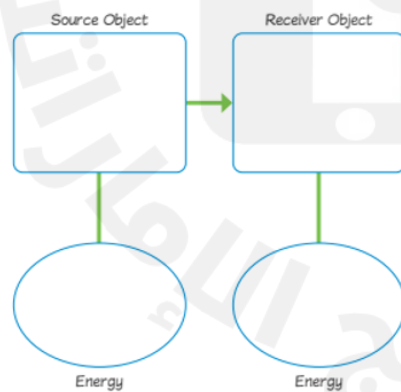
33

Where did the heat go?



THREE-DIMENSIONAL THINKING

In the figure above, the water in the ice cube tray is 10°C. It is placed in the freezer at 0°C. Add arrows to the figure to **model** the direction of **energy** transfer.

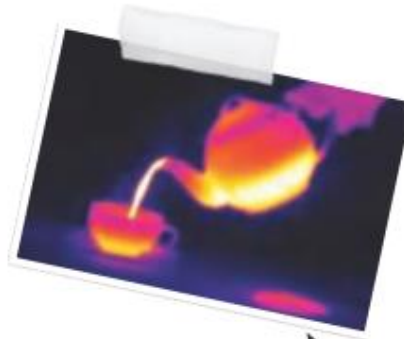


34



THREE-DIMENSIONAL THINKING

In the thermogram on the right, how do conduction and radiation **explain** the **energy** transfers occurring?



What's happening here?

35



Adita and his friends were learning about insulators and conductors in school. They all agree that metal, a conductor, will heat up more quickly than ceramic, an insulator. They have different ideas about how the materials will cool. This is what each friend said:

- Adita:** I think the ceramic will cool quicker than the metal.
- Niabi:** I think the metal will cool quicker than the ceramic.
- Irene:** I think they will both cool at the same rate.
- Rafi:** I think conductors and insulators have nothing to do with how a material cools, just how a material heats up.

Which student do you agree with the most? _____
Explain your ideas about conductors and insulators.

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ENCOUNTER | Why is this kitchenware made out of
THE PHENOMENON | so many different materials?

37



THREE-DIMENSIONAL THINKING

You can bake food in either a metal pan or oven safe glass. Which would require more **energy** to heat up? Which would cool down the fastest? Explain your reasoning.

38



COLLECT EVIDENCE

How does the type of material in the kitchenware affect how it transfers thermal energy?

39

4. The specific heat of air is $1.0 \text{ J/g}\cdot\text{K}$ and the specific heat of copper is $0.4 \text{ J/g}\cdot\text{K}$. Which statement describes how each material would affect the amount of thermal energy transferred?
- A Air and copper transfer thermal energy the same.
 - B Copper transfers thermal energy the quickest.
 - C Air transfers thermal energy the quickest.
 - D Specific heat does not determine how thermal energy transfers.

40



Four friends noticed a large puddle on the sidewalk when they walked to school in the morning. When they walked home, the puddle was gone. They wondered what happened to the water that was in the puddle.

- Desi:** I think the water soaked into the bricks.
Trudi: I think the water went up into the clouds.
Max: I think the water is in the air around us.
Carli: I think the Sun changed it into something else.

Circle the student you most agree with. Explain why you agree with that student.

41



THREE-DIMENSIONAL THINKING

On the figure below, **model** the process that changes liquid water to water vapor. Label the transfer of **energy** that takes place during this process.



How does **energy** from the Sun drive the cycling of **matter**?

42



COLLECT EVIDENCE

Why do clouds and other bodies of water “disappear?”

43



COLLECT EVIDENCE

How else does water enter the atmosphere?

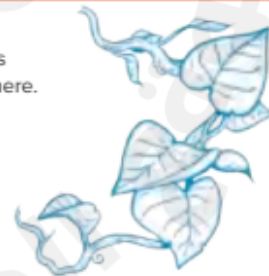
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THREE-DIMENSIONAL THINKING

Model the three ways water enters the atmosphere. Use arrows and labels to show the transfer of **energy** that drives the cycling of water from Earth's surface to Earth's atmosphere.



45



THREE-DIMENSIONAL THINKING

On the figure below, **model** the process that changes water vapor to liquid water. Label the transfer of **energy** that takes place during this process.



46



COLLECT EVIDENCE

How do clouds form?

47

- 1. Sketch** Create a concept sketch that models how water cycles into and through the atmosphere. To construct a concept sketch, begin by listing the processes and relationships you want to describe. Then, draw your sketch and write complete sentences describing the sketch. Include labels for the energy that drives water cycling, the state that water is in at each step (solid, liquid, or gas), and the transfer of thermal energy. Be creative!

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Three-Dimensional Thinking

Jorge wanted to model two processes that cycle water in the atmosphere for a class project. He began by filling a self-sealing plastic bag half-full of water. After sealing the bag, he taped it to a sunny window. After a few hours, water beaded along the inside of the bag.

- 2.** Which processes are represented by Jorge's model?
 - A** transpiration and respiration
 - B** condensation and crystallization
 - C** respiration and evaporation
 - D** evaporation and condensation

Examine the photo below.



3. Which statement best describes the transfer of energy in the photo above?

- A When water changes state from a liquid to a solid, thermal energy is absorbed.
- B When water changes state from a solid to a liquid, thermal energy is absorbed.
- C When water changes state from a liquid to a solid, thermal energy is released.
- D When water changes state from a solid to a liquid, thermal energy is released.

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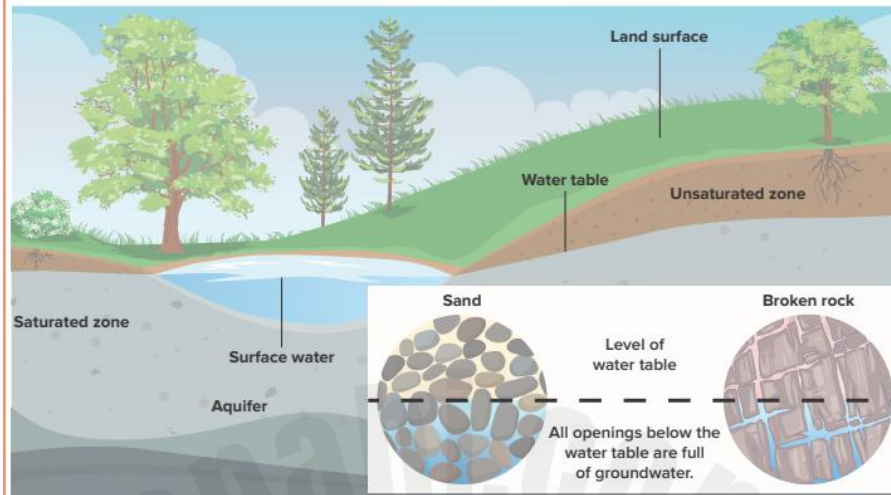
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<p>50</p>	<div data-bbox="672 254 894 590" data-label="Image"> </div> <p>Jane was drinking a glass of water. She asked her father where the water came from. Her father said it was groundwater that was pumped up by their well. Jane wondered what the water looked like underground. This is what her family said:</p> <p>Mom: I think it looks like a huge ocean underground.</p> <p>Dad: I think it looks like a small lake underground.</p> <p>Jack: I think it seeps into little holes or spaces between the soil and the rocks.</p> <p>Annie: I think it looks like a long, underground tube filled with water.</p> <p>Philip: I think it looks like an underground volcano with water spurting out of the top.</p> <p>Which person do you agree with the most? Explain your ideas about groundwater.</p>
<p>51</p>	<p>ENCOUNTER THE PHENOMENON</p> <p>How might a single drop of water travel from a cloud to a stream to an aquifer?</p>
<p>52</p>	<p>COLLECT EVIDENCE</p> <p>Why does water on Earth's surface flow and where does it go?</p>



THREE-DIMENSIONAL THINKING

1. Draw arrows on the figure below to **model** how you think groundwater might flow.



2. Read the first paragraph on the following page and revise your arrows as needed.
3. What force **causes** groundwater to flow?

1. **Organize** Create a graphic organizer that illustrates the role of gravity in keeping water moving on Earth. Include at least four places where water is stored and the state that water is in at each reservoir.



Three-Dimensional Thinking

Four friends are walking along the bank of a stream. They each have differing opinions of why the stream moves along Earth's surface.



2. Which person do you agree with the most?

- A Marco: Wind drags water particles along in the stream.
- B Selma: Gravity causes water in the stream to move downhill.
- C Brock: The Sun warms the stream causing it to flow.
- D Chen: The stream moves because of its velocity.

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Four friends are at the beach on a sunny day. They notice that the sand is much warmer than the ocean water. They wondered why the temperatures of these surfaces differed even though they are exposed to the same amount of sunlight.

Carla: I think that land warms faster than the ocean because water requires more energy to be heated.

Ethan: I think the land warms faster than the ocean because solar energy is more attracted to solid surfaces than liquid surfaces.

Max: I think the land warms faster than the ocean because water is clear and sunlight can pass through it more easily than the land.

Talia: I think the land warms faster than the ocean because water depth increases away from the shore.

Circle the name of the friend you most agree with. Explain why you agree with that friend.

57

ENCOUNTER | What effect does the Sun have on
THE PHENOMENON | water?

58



THREE-DIMENSIONAL THINKING

Models can be used to represent **systems** and their interactions. How did this demonstration **model** energy transfer between the Sun and Earth? Support your reasoning with a real-life example.



THREE-DIMENSIONAL THINKING

You just investigated how thermal energy from land and water influence the atmosphere. Now, use these **cause-and-effect** relationships to predict how land, water, and air will absorb and release thermal energy in the following scenarios.



1. Suppose you go to the beach in the morning of a sunny summer day. **Explain** the rate at which thermal **energy** is absorbed by the water, sand, and air during the day.

2. **Explain** why the flow of **energy** between air and sand is different than that between air and water as thermal energy is absorbed from day to night.

60



As the Sun begins to set, predict the **effect** on the rate at which the air, water, and sand will cool.

61



THREE-DIMENSIONAL THINKING

For Earth to radiate thermal energy, it must first absorb thermal energy. However, some natural surfaces on Earth and in the atmosphere are more reflective than absorbent. Examine the photo below.



Use the photo to describe areas of high and low albedo. **Explain** your reasoning.

62

Diagram Create a visual to show how energy is transferred from the Sun to Earth and the atmosphere. Include how features on Earth's surface affect this transfer of energy.

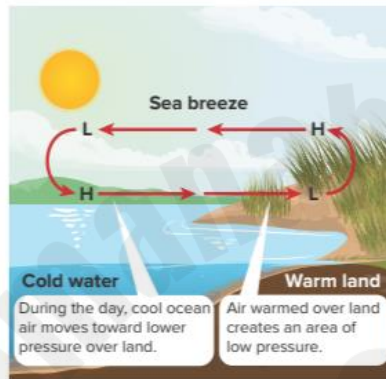
63

INVESTIGATION

It's a Breeze

GO ONLINE to watch the animation *Sea Breezes and Land Breezes*.

- Using what you learned in the animation, model the formation of a land breeze in the space below.



- Predict whether a sea breeze could occur at night. Explain.

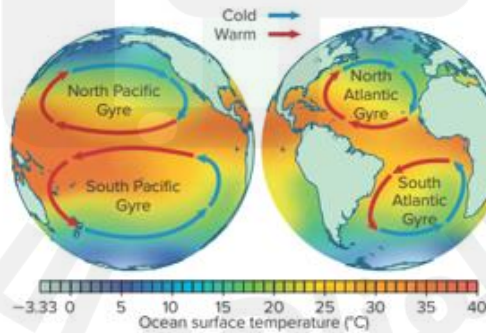
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THREE-DIMENSIONAL THINKING

Analyze the map of gyres below. Then answer the questions that follow.



- What **energy** ultimately drives convection in the oceans?

 **GO ONLINE** to watch the animation *Great Ocean Conveyor Belt*.

What is the Great Ocean Conveyor Belt and what does it affect?

