

مراجعة هيكل العلوم صف سادس

انسبيـر

EOT REVISION Grade 6 T-1

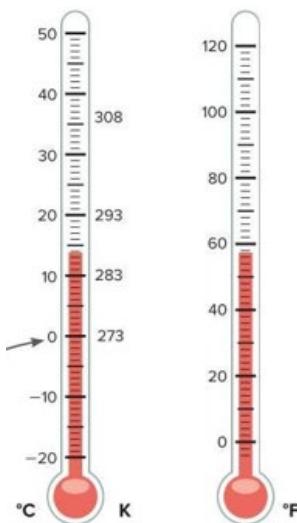
Answer

الحلول



Grade 5 – Inspire Science

Term 1 EOT Revision

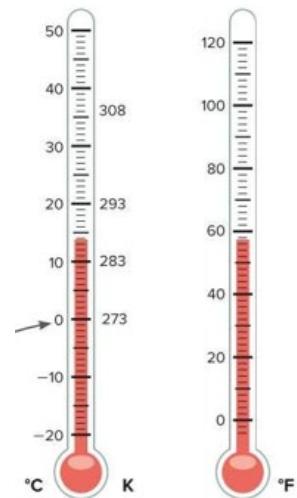


How do thermometers measure temperature through thermal expansion and contraction?

- A) Liquids expand and their volume decreases with temperature rise
- B) Liquids contract and their volume decreases with temperature rise
- C) Liquids expand and their volume increases with temperature rise
- D) Liquids contract and their volume increases with temperature drop

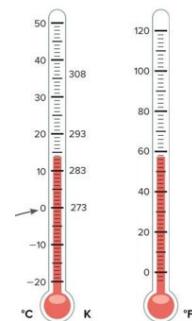
which of following is **TRUE about the temperature indicated by the arrow in the following figure**

- A) The temperature at which pure water freezes.
- B) The temperature at which all particle motion stops.
- C) This temperature is called absolute zero
- D) The Lowest possible temperature in the universe

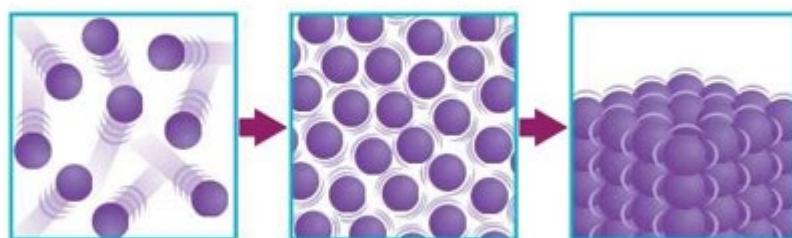


Why are liquids generally better than solids for use in thermometers?

- A) Liquids have particles that vibrate in place.
- B) Liquids do not expand or contract with temperature changes.
- C) The expansion in liquids is more visible than in solids, making changes easier to detect.
- D) Liquids has higher specific heat than solids



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.

Which of the following is **True**?

- A. Part A has high specific heat to cook faster
- B. Part B has high specific heat to cook faster
- C. Part A has high specific heat to protect your hand
- D. Part B has Low specific heat to protect your hand



Cooking in oven-safe glass pan **slower** than a metal pan?

- A) Glass has a higher specific heat than metal
- B) Metal absorbs heat more slowly than glass.
- C) Glass conducts heat more quickly than metal.
- D) Metal has a higher specific heat than glass.

Which of the following will **increase** an object's **kinetic energy the most**?

- A) Increasing its mass while keeping its speed constant.
- B) Increasing its speed while keeping its mass constant.
- C) Decreasing both its mass and speed.
- D) Increasing its mass while keeping its speed Zero.

Which of the following is **Not** true?

- A. More mass → More kinetic energy
- B. less speed → less kinetic energy
- C. Zero speed → No kinetic energy
- D. More speed → less kinetic energy

What determines the state of matter for a substance?

- A) The color and density of its particles.
- B) The motion of its particles and the attractive forces between them.
- C) The size and weight of its particles.
- D) The shape of the container holding the substance.

Why do liquids have a definite volume but no definite shape?

- A) Particles in liquids are fixed in place by strong forces.
- B) Particles in liquids move quickly and spread far apart.
- C) Particles in liquids move over one another but stay close due to moderate attractive forces.
- D) Particles in liquids move away from each other completely.

Which of the following best explains why gases do not have a definite shape or volume?

- A) Particles in gases vibrate in place and stay close together.
- B) The attractive forces in gases are too weak to keep particles close, allowing them to move freely.
- C) Particles in gases have strong attractive forces that keep them close together.
- D) Particles in gases slide over one another and stay moderately close.

**What is radiation in terms of thermal energy transfer?**

- A) Transfer of thermal energy through direct contact between objects.
- B) Transfer of thermal energy through electromagnetic waves from one material to another.
- C) Transfer of thermal energy through particle collisions within a material.
- D) Transfer of thermal energy only in liquid substances

In a thermogram, which color indicates objects that are more likely to receive thermal energy?

- A) Red
- B) Yellow
- C) Blue
- D) Green



Why do warmer objects emit more radiation than cooler objects?

- A) Because warmer objects have a lower kinetic energy.
- B) Because warmer objects transfer energy through direct contact.
- C) Because warmer objects emit more electromagnetic waves.
- D) Because cooler objects emit more energy to balance temperatures.

After heating the toast in a toaster and placing it in a dish, which **direction** does **heat transfer** occur between the toast and the environment?



- A) Heat transfers from the environment to the toast.
- B) Heat transfers from the toast to the environment.
- C) Heat transfers equally between the toast and the environment.
- D) Heat does not transfer at all after the toast is removed from the toaster.

What is the primary method of heat transfer occurring between the hot toast and its surrounding environment?

- A) Conduction
- B) Convection
- C) Radiation
- D) Insulation



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.

D

Which factors affect the amount of energy transfer in a sample of matter?

- A) Only the temperature of the sample.
- B) The nature of the matter and the size of the sample.
- C) The color and shape of the sample.
- D) The state of matter and the pressure applied to the sample.

When ice melts which of the following is **correct**?



	Ice temperature	Particles speed
A	decreases	decreases
B	increases	decreases
C	increases	increases
D	decreases	increases

How does the amount of energy required to **melt ice** compare to the amount of energy released when **water freezes**?

- A) The energy required to melt ice is greater than the energy released when water freezes.
- B) The energy required to melt ice is less than the energy released when water freezes.
- C) The energy required to melt ice is equal to the energy released when water freezes.
- D) There is no energy transfer during melting or freezing.



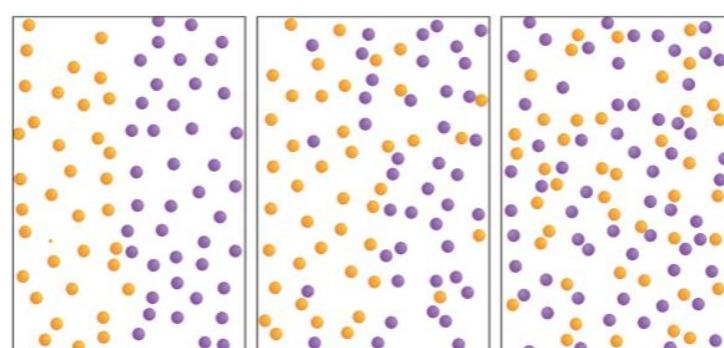
Some students want to demonstrate thermal expansion. They devise the following method: A large black balloon is taken to a shady area and filled with cool air. The balloon is then taken to a bright, sunny location. After a short time, the balloon begins to expand.

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.

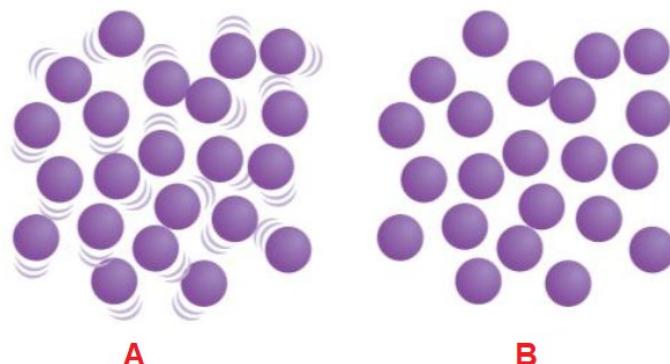
What is radiation?

- A**) The transfer of heat through direct contact between objects.
- B**) The transfer of energy through the movement of fluids.
- C**) The transfer of energy in the form of electromagnetic waves.
- D**) The transfer of energy through particle collisions.



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

- A- Radiation
- B- Conduction
- C- Diffusion
- D- Convection



Which Particles HAS **MORE** kinetic energy and **why**?

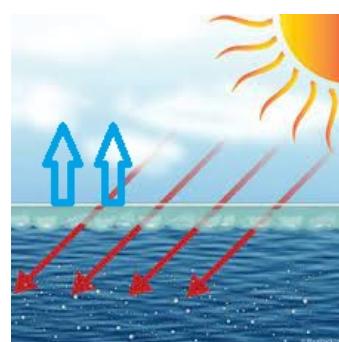
- A- Particles in figure A because they are closer together
- B- Particles in figure B because they are closer together
- C- Particles in figure A because they have more motion lines
- D- Particles in figure A because they have more motion lines



What happens to water molecules at the surface of a puddle when they receive radiant energy from the Sun?

- A) They become colder and sink to the bottom.
- B) They absorb energy, break free from their attractions, and change into water vapor.
- C) They remain unchanged and stay in liquid form.
- D) They freeze and turn into ice.

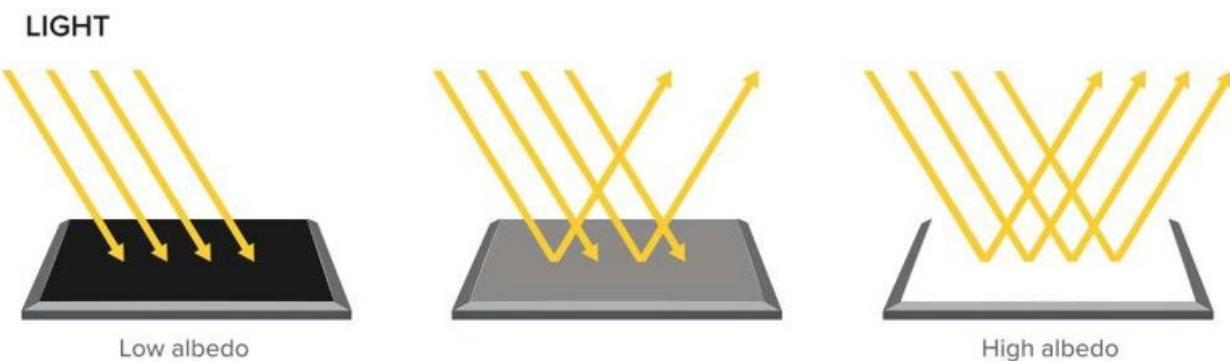
Which of the following is correct regarding the following fig?



- A- The red arrows represent the evaporation of water
- B- The blue arrows represent the energy heating the water
- C- The red arrows represent energy heating the water
- D- The red arrows represent heat transfer by conduction

What does a high albedo value indicate about a surface?

- A) The surface absorbs a lot of sunlight.
- B) The surface reflects a significant amount of sunlight.
- C) The surface retains heat very well.
- D) The surface has a low temperature.

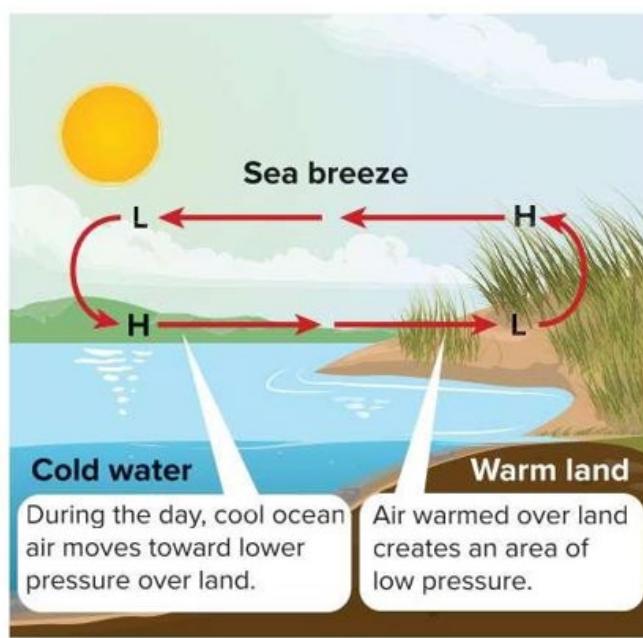


How does the reflectivity of a surface (albedo) affect its temperature?

- A) Surfaces with high albedo tend to be warmer because they absorb more heat.
- B) Surfaces with low albedo tend to be warmer because they absorb more heat.
- C) Albedo does not affect the temperature of surfaces.
- D) High albedo surfaces have no impact on their surrounding temperature

Which is most likely to absorb more solar energy, a field of light-colored crops or a forest of dark trees?

- A) The field of light-colored crops absorbs more solar energy.
- B) The forest of dark surfaces absorbs more solar energy.
- C) Both absorb the same amount of solar energy.
- D) Neither absorbs solar energy.



What causes the difference in temperature between land and water, leading to the formation of a sea breeze?

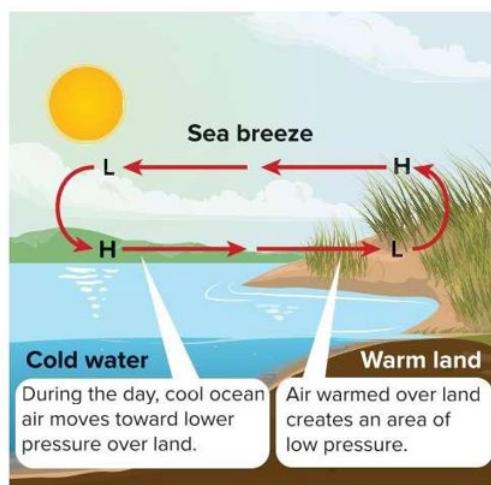
- A) Water absorbs heat faster than land.
- B) Land heats up and cools down more quickly than water.
- C) Both land and water heat at the same rate.
- D) Water reflects sunlight better than land.

When does a sea breeze typically occur?

- A) During the night when land cools down.
- B) In the morning when the sun rises.
- C) During the day when the land heats up faster than the sea.
- D) In the evening when the sea cools down.

What is the main reason a land breeze can occur after a sea breeze in the same location?

- A) The land retains heat longer than the sea.
- B) The sea continues to absorb heat while the land cools down.
- C) The Sun's energy warms the land and sea unevenly, changing temperature differences over time.
- D) The air over the sea becomes cooler than the air over the land all the time.



What phenomenon causes the wind to blow from the land to the sea at night?

- A) The land heats up faster than the water.
- B) The water cools down faster than the land.
- C) The air over the land cools more quickly than the air over the water.
- D) The pressure over the land becomes higher than over the water.

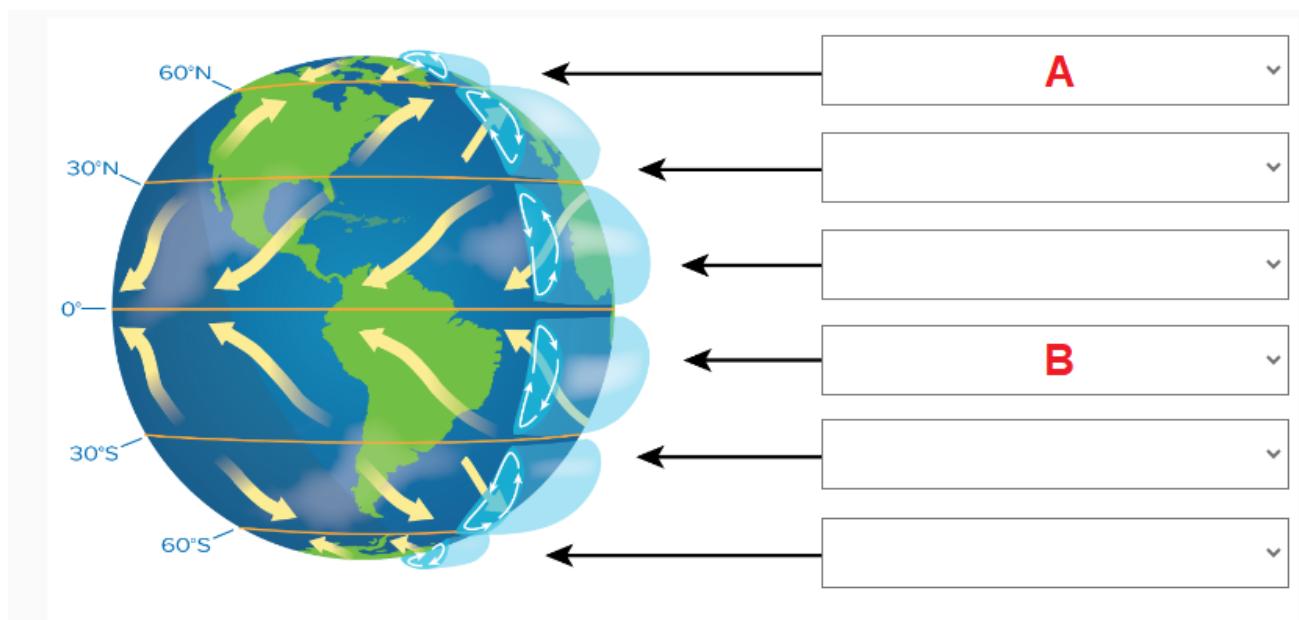
What creates the lower pressure over the water at night, prompting the land breeze?

- A) The air over the water becomes warmer than the air over the land.
- B) The air over the land becomes cooler and denser than the air over the water.
- C) The wind changes direction and flows upward from the sea.
- D) The land retains heat longer than the water.

What is the result of the cooler air over the land moving toward the water at night?

- A) The air pressure over the land increases.
- B) A land breeze is created.
- C) The temperature of the water decreases significantly.
- D) A thunderstorm develops.

Choose the correct answer to determine the type of wind



	A	B
A	Polar easterlies	prevailing westerlies
B	Polar easterlies	trade winds
C	Prevailing westerlies	trade winds
D	prevailing westerlies	prevailing westerlies

The polar easterlies are winds that blow in which direction?

- A) West to East
- B) North to South
- C) East to West
- D) South to North

Which two types of winds flow in the same direction?

- A) Polar easterlies and trade winds
- B) Polar easterlies and prevailing westerlies
- C) Prevailing westerlies and trade winds
- D) Polar easterlies and jet streams

Which winds are known to flow between 30°N latitude and 30°S latitude?

- A) Polar easterlies
- B) Prevailing westerlies
- C) Trade winds
- D) Jet streams

Polar easterlies originate from which type of air?

- A) Warm tropical air
- B) Humid coastal air
- C) Dense polar air
- D) Dry desert air

How does wind influence the movement of water?

- A) By causing water to evaporate quickly
- B) By creating ocean currents and surface waves
- C) By making water warmer near the equator
- D) By stopping the flow of rivers

Written part

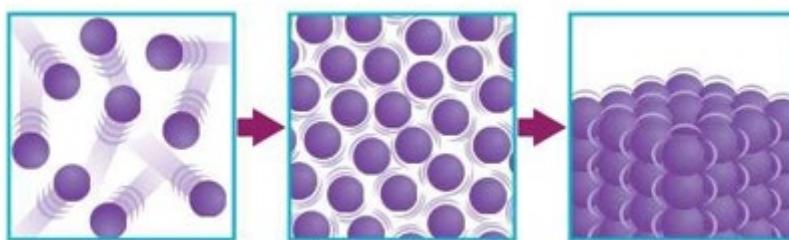
	 20°C	 80°C
Kinetic energy		
Speed of particles		
Diffusion rate		

Complete

More mass → kinetic energy

less speed → kinetic energy

Zero speed → kinetic energy

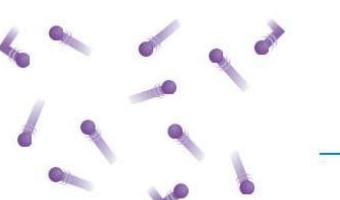


THREE-DIMENSIONAL THINKING

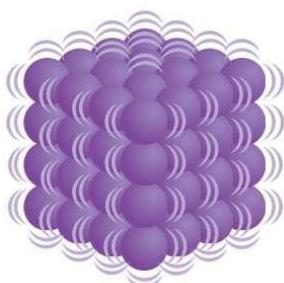
For each example:

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).

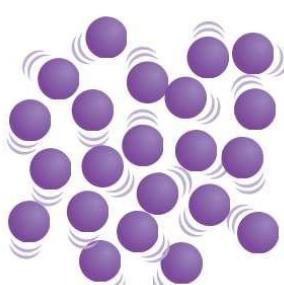
A



B



C



Condensing

Liquid

Melting

Liquid

Potential Energy = _____

Attractive Forces = _____

Potential Energy = _____

Attractive Forces = _____

Potential Energy = _____

Attractive Forces = _____

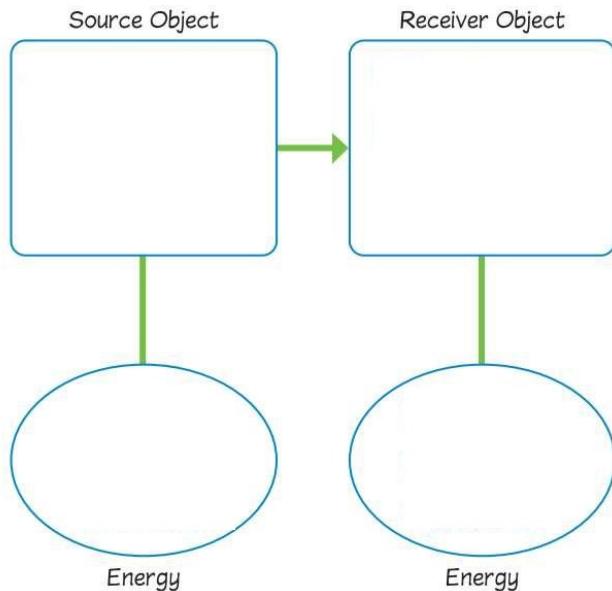


Heat transfer from to

Temperature of soap And temperature of surrounding air

**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.



transfers from the **warmer water in the tray** to the **colder environment in the freezer**.



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.

is Niabi: I think the metal will cool quicker



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.

Max

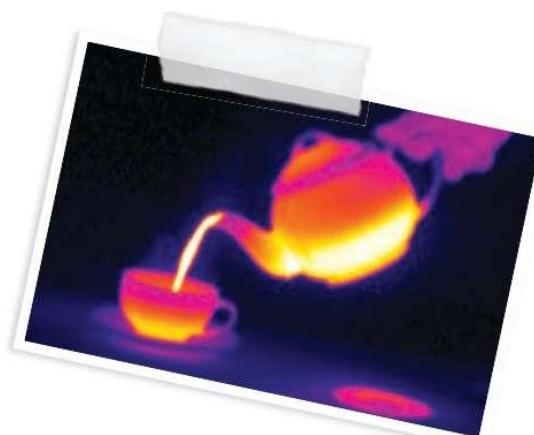


THREE-DIMENSIONAL THINKING

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

Conduction happened between the teapot and the table leaving behind a spot of high thermal energy when it was picked up.

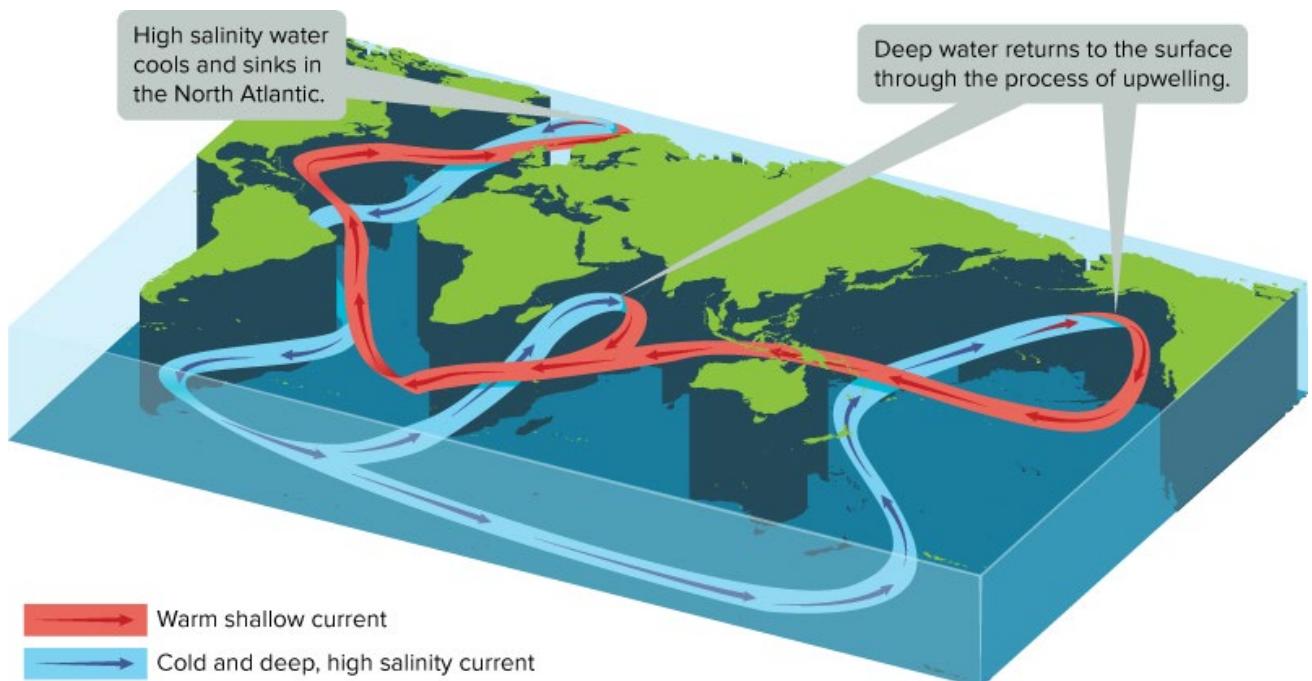
Radiation is happening on all objects.



What's happening here?

	Air	copper
Specific heat	Low
conductivity	insulator
Time to get cool		





Thank you

Mr. Adham Zewin