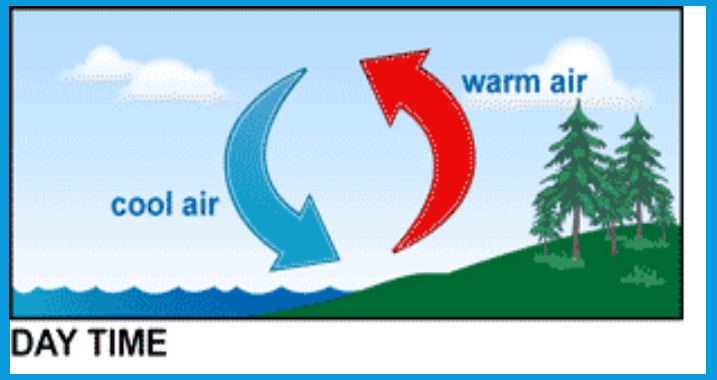
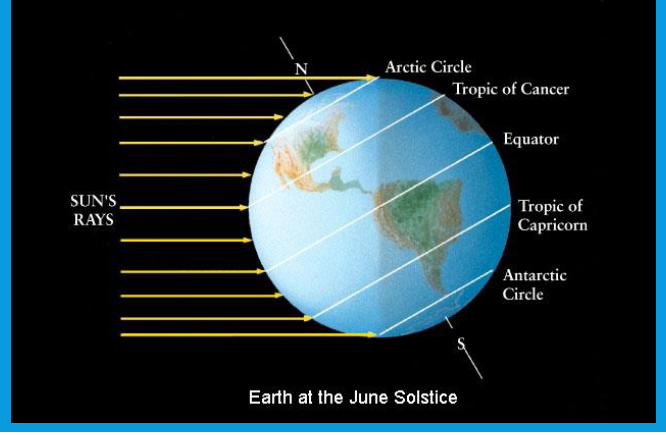
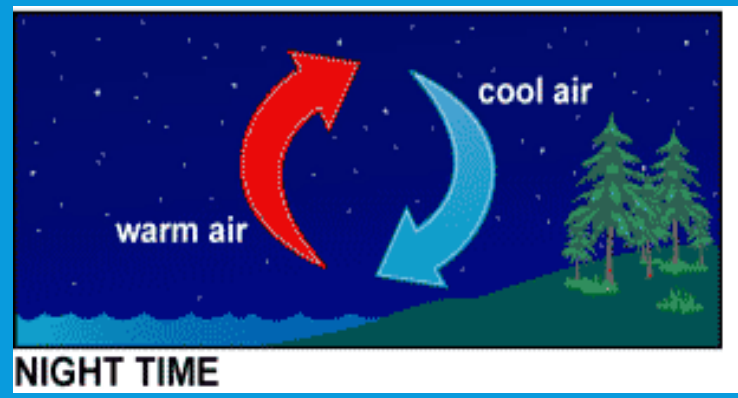






ATMOSPHERIC MOTION

SC.6.E.7.5 Explain how energy provided by the Sun influences global patterns of atmospheric movement and the temperature differences between air, water, and land.

Essential Question: How does energy move predictably between land, water and the air above it?

DO NOW

On a summer day, Thomas is standing in his driveway waiting for his mother. Energy from the Sun is making Thomas feel hot. This energy is being transmitted by three different methods. Which of the following is an example of convection?

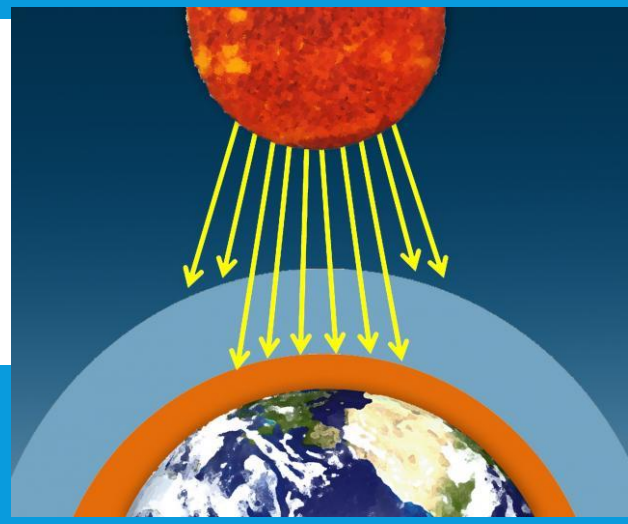
A. Energy streaming through space toward Thomas

B. Heat being transferred from air particles to the asphalt

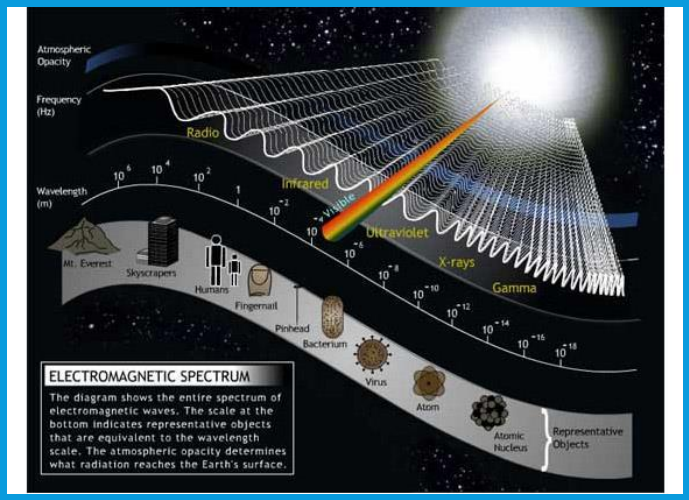
C. Heat moving through Thomas's clothes to warm his skin

D. Warm air rising from just above the asphalt to reach the level of Thomas's face

RADIATION



- ***Radiation*:** Electromagnetic Waves from the Sun travel through our atmosphere and hit the surface (land, water)
- When absorbed, the light transforms to heat energy.



CONDUCTION

CONDUCTION: *The transfer of heat energy by two or more objects in contact with each other.*

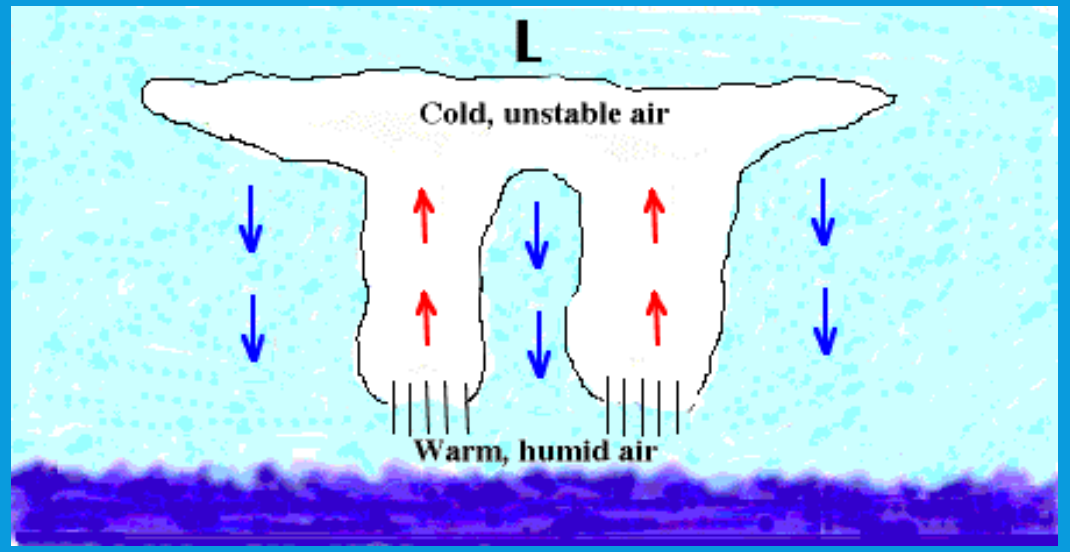
- *The hot land warms the air it touches above it*
- *The warm water warms the air it touches above it.*

CONVECTION

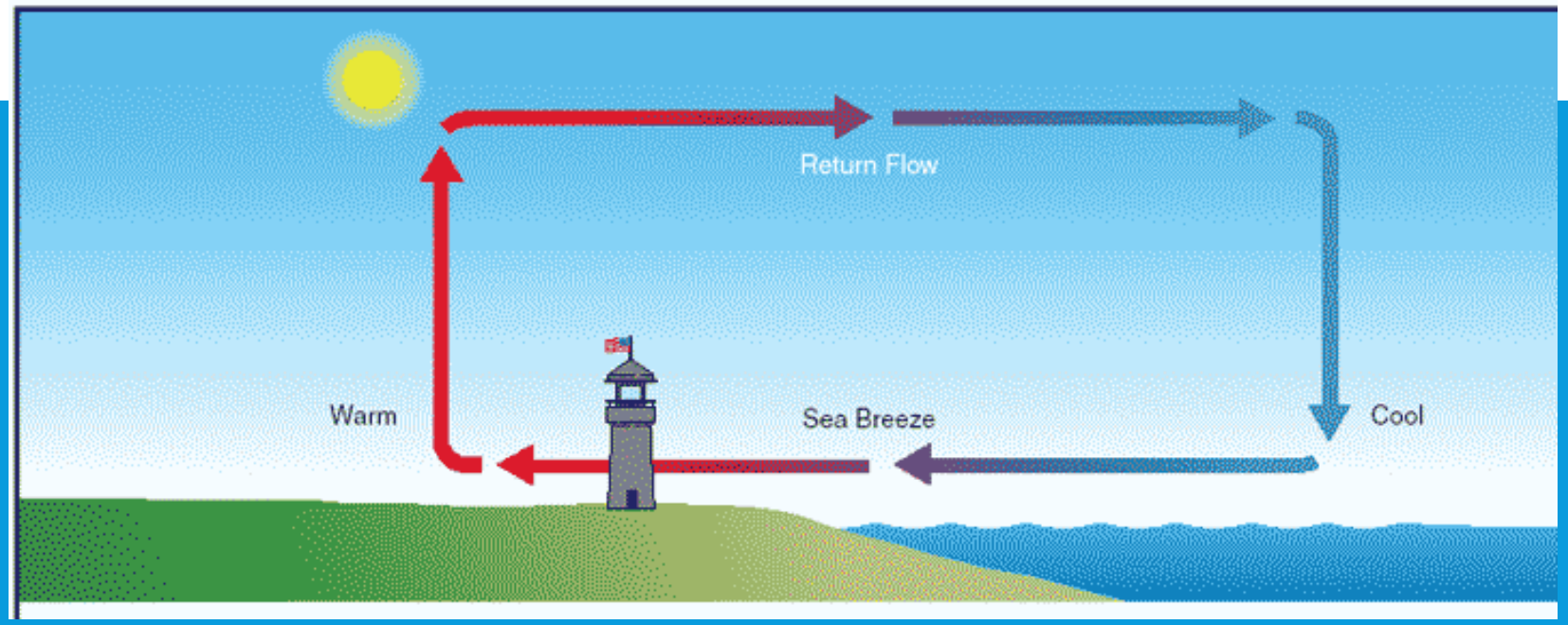
***Convection*: The transfer of energy through the movement of hot or cool fluids (air and water).**

- **Hot air rises because it has low pressure.**
- **Cool air sinks because it has high pressure.**

- Differences in temperature (and air pressure) cause wind (moving air trying to reach the same temperature.)

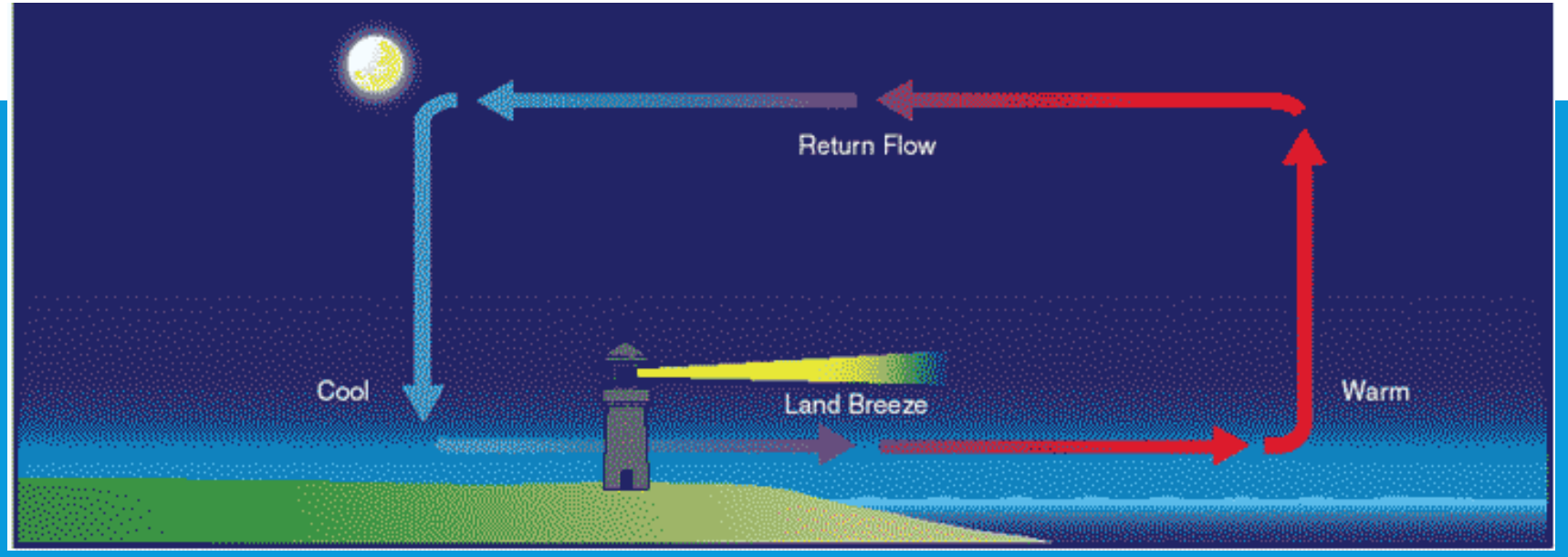


SEA BREEZE



- During the day, the land is HOTTER than the ocean.
- A breeze moves from the cool air over water (HIGH pressure) to the warm air over land (LOW pressure).

LAND BREEZE



- At night, the ocean is WARMER than the land.
- A breeze moves from the cool air over land (HIGH pressure) to the warm air over the ocean (LOW pressure).

SPECIFIC HEAT

- How quickly a substance absorbs and gives off heat.
- Land heats up/gives off heat very quickly.
- Water heats up/gives off heat very slowly.

WE DO COLLABORATIVE ACTIVITY

Atmospheric Movement We Do

Categorize the following examples as Radiation (R), Conduction (Cd), or Convection (Cv):

1. Hot air rising off of very hot blacktop. _____
2. Waves being absorbed by a black shirt. _____
3. Warmer and cooler water mixing where a river and ocean meet. _____
4. Hot sand heating the cooler sand beneath it. _____

Answer the questions below:

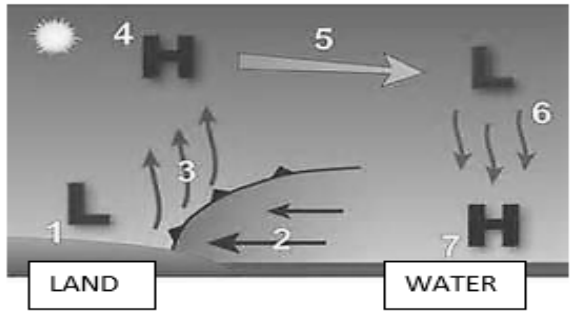
5. Areas near the equator typically get more radiation energy (heat) than areas near the poles. What is causing the Earth to be heated so unevenly?-

   _____

   _____

   _____

6. What type of pressure is found where air is hot? _____
7. What type of pressure is found where air is cool? _____
8. Wind moves from areas of _____ pressure to areas of _____ pressure.
9. Where in the diagram is hot air rising? _____
10. Where in the diagram is cool air sinking? _____
11. Where in the diagram is wind moving? _____



EXIT TICKET: Essential Question: How does energy move predictably between land, water and the air above it?

_____

_____

_____

REVISITING THE DO NOW

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EXIT TICKET

How does energy move predictably between land, water and the air above it?