Name: _____ Date: _____

Mountain Snowpack, the Slow Water Tank

Circle group

In many mountain areas, winter snow works like a water tank. It stores water in the cold months and gives it back in the warm ones. This stored snow is called the snowpack. Millions of people in the valleys and cities below depend on it, even where it hardly rains in summer.

Snow piles up in layers through the winter. Each snowfall adds a new layer. The weight of the top layers presses the lower ones into denser snow. A snowpack holds a lot of water, because water is locked inside the frozen crystals. Scientists find the snow water equivalent. This is how deep the water would be if the snow were melted. A deep, fluffy snowpack may hold less water than a shorter, heavy one. So depth alone can fool you.

In spring, the sun warms the slopes and the snow melts. Meltwater trickles into streams. The streams swell and feed rivers, reservoirs, and underground water supplies. Melting is slow, so the water comes over weeks or months, just when farms and towns need it most. Without the snowpack, much of the water would rush down in winter storms and run off to the sea.

Water managers watch the snowpack closely. Crews visit marked sites each month to measure snow depth and weight. Automatic sensors report from far slopes. These facts help predict how much water will flow in summer and how full the reservoirs will be. If winters get warmer, more precipitation falls as rain and the snow melts earlier. That can leave less stored for summer. So people keep a careful record of how the mountain tank is filling.

Questions

1. What is a snowpack?

_____

_____

2. What is the snow water equivalent?

_____

_____

3. Where does meltwater go in spring?

_____

_____

4. Why might a deep, fluffy snowpack hold less water than a shorter, heavy one?

_____

_____

5. Why does slow melting help farms and towns?

_____

_____

6. Why could warmer winters leave less water for summer?

_____

_____

Words to know

snowpack: the snow that builds up in layers on mountains in winter
equivalent: equal in amount or value to something else
meltwater: water made when snow or ice melts
reservoirs: large places where water is stored for people to use
sensors: devices that measure something and report it

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Mountain Snowpack, the Slow Water Tank

Triangle group

In many mountain regions, winter snow works like a water tank that stores water in the cold months and gives it back in the warm ones. This stored snow is called the snowpack. Millions of people in the valleys and cities below depend on it, even in places where it hardly rains in summer.

Snow piles up in layers through the winter. Each snowfall adds a new layer, and the weight of the upper layers presses the lower ones into denser snow. A snowpack holds a surprising amount of water, because water is locked inside the frozen crystals. Scientists measure this by finding the snow water equivalent, which is how deep the water would be if the snow were melted. A deep, fluffy snowpack may hold less water than a shorter, heavy one, so depth alone can be misleading.

When spring warms the slopes, the snow begins to melt. Meltwater trickles into streams, and the streams swell and feed rivers, reservoirs, and underground water supplies. Because melting happens gradually, the supply arrives over weeks or months, just when farms and towns need it most. Without the snowpack, much of the water would rush down in the winter storms and run off to the sea.

Water managers watch the snowpack closely. Crews visit marked sites each month to measure snow depth and weight, and automatic sensors report from remote slopes. These measurements help them predict how much water will flow in the coming summer and how full the reservoirs will become. If winters turn warmer, more precipitation falls as rain and the snow melts earlier, and that can leave less stored for summer. So scientists and water managers keep a careful record of how the mountain tank is filling.

Questions

1. What is a snowpack?

_____

_____

2. What is the snow water equivalent?

_____

_____

3. Where does meltwater go in spring?

_____

_____

4. Why might a deep, fluffy snowpack hold less water than a shorter, heavy one?

_____

_____

5. Why does gradual melting help farms and towns?

_____

_____

6. Why could warmer winters leave less water for summer?

_____

_____

Words to know

snowpack: the snow that builds up in layers on mountains in winter
equivalent: equal in amount or value to something else
meltwater: water made when snow or ice melts
reservoirs: large places where water is stored for people to use
sensors: devices that measure something and report it

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Mountain Snowpack, the Slow Water Tank

Square group

In many mountainous regions, winter snow functions like an enormous water tank, storing water throughout the cold months and releasing it again during the warm ones. This accumulated snow is called the snowpack. Millions of people in the valleys and cities below depend on it, even in places where rain is scarce in summer.

Snow builds up in layers over the course of the winter. Each snowfall adds a fresh layer, and the weight of the upper layers presses the lower ones into denser snow. A snowpack holds a surprising quantity of water, because the water is locked inside the frozen crystals. Scientists measure this by determining the snow water equivalent, which is how deep the water would be if the snow were melted. A deep, fluffy snowpack may contain less water than a shorter, heavier one, so depth alone can be misleading.

When spring warms the slopes, the snow begins to melt. Meltwater trickles into streams, and the streams swell and feed rivers, reservoirs, and underground water supplies. Because the melting occurs gradually, the supply arrives over a period of weeks or months, precisely when farms and towns need it most. Without the snowpack, much of the water would rush down during the winter storms and run off to the sea.

Water managers monitor the snowpack with great care. Crews visit marked sites each month to measure the depth and weight of the snow, and automatic sensors report from remote slopes. These measurements help managers predict how much water will flow during the coming summer and how full the reservoirs will become. If winters turn warmer, more precipitation falls as rain and the snow melts earlier, which can leave less water stored for summer. Scientists and managers therefore keep a careful record of how the mountain tank is filling.

Questions

1. What is a snowpack?

_____

_____

2. What is the snow water equivalent?

_____

_____

3. Where does meltwater travel in spring?

_____

_____

4. Why might a deep, fluffy snowpack contain less water than a shorter, heavier one?

_____

_____

5. Why does gradual melting benefit farms and towns?

_____

_____

6. Why could warmer winters leave less water stored for summer?

_____

_____

Words to know

snowpack: the snow that builds up in layers on mountains in winter
equivalent: equal in amount or value to something else
meltwater: water made when snow or ice melts
reservoirs: large places where water is stored for people to use
sensors: devices that measure something and report it

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Mountain Snowpack, the Slow Water Tank

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Mountain Snowpack, the Slow Water Tank

Easier · 272 words · Flesch-Kincaid grade 4.8

1. Snow that piles up in layers through the winter and stores water until the warm months.
2. How deep the water would be if the snow were melted.
3. Into streams that feed rivers, reservoirs, and underground water supplies.
4. Fluffy snow has more air in it, so there is less water for its depth.
5. The water comes over weeks or months, just when they need it most.
6. More precipitation falls as rain and the snow melts earlier, so less is stored.

Triangle: Mountain Snowpack, the Slow Water Tank

This passage · 288 words · Flesch-Kincaid grade 7.7

1. Snow that piles up in layers through the winter and stores water until the warm months.
2. How deep the water would be if the snow were melted.
3. Into streams that feed rivers, reservoirs, and underground water supplies.
4. Fluffy snow has more air in it, so there is less water for its depth.
5. The water arrives over weeks or months, just when they need it most.
6. More precipitation falls as rain and the snow melts earlier, so less is stored.

Square: Mountain Snowpack, the Slow Water Tank

Harder · 300 words · Flesch-Kincaid grade 9

1. Snow that accumulates in layers through the winter and stores water until the warm months.
2. How deep the water would be if the snow were melted.
3. Into streams that feed rivers, reservoirs, and underground water supplies.
4. Fluffy snow has more air in it, so there is less water for its depth.
5. The water arrives over weeks or months, precisely when they need it most.
6. More precipitation falls as rain and the snow melts earlier, so less is stored.