Name: _____ Date: _____

How a Tall Tree Drinks

Circle group

A tall tree has leaves far above the ground, but it has no drinking fountain. How does water get to the top?

The trip starts underground. The roots of a tree spread through the soil. The tips of the roots have tiny hairs. These root hairs soak up water and minerals, like thousands of little straws.

From the roots, the water goes into narrow tubes. The tubes run up the trunk and branches, just under the bark. They are like a long set of pipes. They carry water to the leaves.

Then something interesting happens. A leaf has many tiny openings. A leaf lets water out through them as vapor, a fine mist you cannot see. When water leaves the top of the tree, more water is pulled up the tubes to take its place. It is a bit like drinking through a straw. Pulling at the top draws the water up.

Leaves also use some of the water, with sunlight, to make food for the tree.

On a warm day, a big tree can send a lot of water into the air. This is one reason a forest feels cool and fresh.

Questions

1. What do root hairs do?

_____

_____

2. Where are the tubes that carry water?

_____

_____

3. How does water leave a leaf?

_____

_____

4. How is a tree moving water like drinking through a straw?

_____

_____

5. What else do leaves do with some of the water?

_____

_____

6. Why might a forest feel cool on a warm day?

_____

_____

Words to know

minerals: natural materials in soil that plants take in to grow
trunk: the main thick stem of a tree
vapor: tiny drops of water in the air, like a mist
bark: the tough outer covering of a tree

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: _____

How a Tall Tree Drinks

Triangle group

A tall tree may have leaves that are far above the ground, yet it never has a drinking fountain. How does water get all the way to the top?

The journey starts underground. A tree's roots spread through the soil, and the tips of the roots are covered with tiny hairs. These root hairs soak up water and minerals from the soil, like thousands of little straws.

From the roots, the water enters narrow tubes that run up through the trunk and branches. Think of them as a long set of pipes, hidden just under the bark. The tubes carry water all the way to the leaves.

At the leaves, something interesting happens. The surface of a leaf has many tiny openings. Through these openings, a leaf lets out water as vapor, which is a very fine mist you cannot see. When water leaves the top of the tree this way, more water is pulled up the tubes to replace it. Scientists say it is a bit like drinking through a straw, since pulling at the top draws the liquid upward.

Leaves also use some of the water, along with sunlight, to make food for the tree.

On a warm day, a large tree can send a great amount of water into the air, which is one reason a forest feels cool and fresh.

Questions

1. What do root hairs do?

_____

_____

2. Where are the tubes that carry water located?

_____

_____

3. How does water leave a leaf?

_____

_____

4. How is a tree's way of moving water like drinking through a straw?

_____

_____

5. What else do leaves do with some of the water?

_____

_____

6. Why might a forest feel cool on a warm day?

_____

_____

Words to know

minerals: natural materials in soil that plants take in to grow
trunk: the main thick stem of a tree
vapor: tiny drops of water in the air, like a mist
bark: the tough outer covering of a tree
replace: to put something new in the place of what was lost

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: _____

How a Tall Tree Drinks

Square group

A towering tree may have leaves that sit far above the ground, yet it has no drinking fountain to rely on. How, then, does water reach the very top?

The journey begins underground, where a tree's roots spread widely through the soil. The tips of the roots are covered with tiny hairs, and these root hairs absorb water and minerals from the soil, much like thousands of microscopic straws.

From the roots, the water enters narrow tubes that run up through the trunk and branches, hidden just beneath the bark. You can picture them as a long network of pipes carrying water all the way to the leaves.

At the leaves, something fascinating occurs. The surface of each leaf is dotted with tiny openings, and through them the leaf releases water as vapor, a fine mist that is invisible to us. As water escapes from the top of the tree in this way, more water is drawn up the tubes to replace it. Scientists compare the process to drinking through a straw, since the pull at the top draws the liquid upward.

Leaves also use some of the water, together with sunlight, to manufacture food for the tree.

On a warm day, a large tree can release an impressive quantity of water into the air, which is one reason a forest often feels cool and fresh.

Questions

1. What do root hairs do?

_____

_____

2. Where are the tubes that carry water located?

_____

_____

3. How does water escape from a leaf?

_____

_____

4. How is the way a tree moves water similar to drinking through a straw?

_____

_____

5. What else do leaves do with some of the water?

_____

_____

6. Why might a forest feel cool on a warm day?

_____

_____

Words to know

minerals: natural materials in soil that plants take in to grow
trunk: the main thick stem of a tree
vapor: tiny drops of water in the air, like a mist
bark: the tough outer covering of a tree
replace: to put something new in the place of what was lost

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: How a Tall Tree Drinks

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

Circle: How a Tall Tree Drinks

Easier · 193 words · Flesch-Kincaid grade 2.9

1. They soak up water and minerals from the soil.
2. In the trunk and branches, just under the bark.
3. Through tiny openings, as a fine vapor.
4. Pulling at the top draws the water up through the tubes.
5. They use it with sunlight to make food for the tree.
6. Trees send a lot of water into the air.

Triangle: How a Tall Tree Drinks

This passage · 224 words · Flesch-Kincaid grade 5

1. They soak up water and minerals from the soil.
2. In the trunk and branches, just under the bark.
3. Through tiny openings, as a fine vapor.
4. Pulling at the top draws the water upward through the tubes.
5. They use it with sunlight to make food for the tree.
6. Trees send a lot of water into the air.

Square: How a Tall Tree Drinks

Harder · 226 words · Flesch-Kincaid grade 7.8

1. They absorb water and minerals from the soil.
2. In the trunk and branches, just beneath the bark.
3. Through tiny openings, as a fine, invisible vapor.
4. The pull at the top draws the liquid upward through the tubes.
5. They use it with sunlight to manufacture food for the tree.
6. Trees release a large quantity of water into the air.