Name: _____ Date: _____

The Sugar That Grows Underground

Circle group

Many people think all sugar comes from sugarcane. Sugarcane is a tall grass that grows in warm places. But much of the world's sugar comes from a different plant, the sugar beet. A sugar beet is a pale, fat root. It looks a bit like a turnip. It grows in the ground in cool places.

Both plants store sugar, but in different places. Sugarcane keeps it in its thick stems. The beet keeps it in the root. Cane needs warm weather all year. Beets do well where it is too cold for cane.

Making sugar from the plants is much the same. In a beet factory, the roots are washed and cut into thin strips. The strips are soaked in hot water. The water pulls out the sugar and leaves the pulp. The sweet juice is cleaned. Then it is boiled until most of the water is gone. As it thickens, sugar crystals form.

Here is the surprise. Pure sugar from a beet and pure sugar from cane look the same. They taste the same. They work the same in a recipe. The pulp is often fed to farm animals.

Questions

1. Where does a sugar beet store its sugar?

_____

_____

2. Where does sugarcane store its sugar?

_____

_____

3. Why are beets grown in places where cane is not?

_____

_____

4. How is the sugar pulled out of the beet strips?

_____

_____

5. What happens as the cleaned juice is boiled and thickens?

_____

_____

6. Why does it not matter in a recipe which plant the sugar came from?

_____

_____

Words to know

sugarcane: a tall tropical grass with sweet stems

pulp: the soft, wet leftovers of crushed plants

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: _____

The Sugar That Grows Underground

Triangle group

Many people think all sugar comes from sugarcane, a tall grass that grows in warm places. Sugarcane is one source, but a large share of the world's sugar comes from a very different plant, the sugar beet. A sugar beet is a pale, fat root, shaped a bit like a turnip, that grows buried in cool-climate fields.

Both plants store sugar, but they store it in different places. Sugarcane keeps it in its thick stems, while the beet packs it into the root. Each plant is grown where its weather suits it. Cane needs warmth all year, and beets do well in cooler regions that would be too cold for cane.

Turning the plant into sugar follows similar steps. In a beet factory, the roots are washed and cut into thin strips. The strips are soaked in hot water, which pulls the sugar out and leaves the pulp behind. The sweet juice is cleaned and then boiled until much of the water is gone. As it thickens, sugar crystals form and are spun out of the syrup.

Here is the surprising part. Once the sugar has been refined, a spoonful from a beet and a spoonful from cane look the same, taste the same and behave the same in a recipe. The pulp left over is often fed to farm animals.

Questions

1. Where does a sugar beet store its sugar?

_____

_____

2. Where does sugarcane store its sugar?

_____

_____

3. Why are beets grown in places where cane is not?

_____

_____

4. How is the sugar pulled out of the beet strips?

_____

_____

5. What happens as the cleaned juice is boiled and thickens?

_____

_____

6. Why does it not matter in a recipe which plant the sugar came from?

_____

_____

Words to know

sugarcane: a tall tropical grass with sweet stems
climate: the usual weather of a place over many years
pulp: the soft, wet leftovers of crushed plants
refined: cleaned and made pure
syrup: a thick, sweet liquid

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: _____

The Sugar That Grows Underground

Square group

A great many people assume that all sugar comes from sugarcane, a tall grass that thrives in warm regions. Sugarcane is certainly one important source, but an enormous share of the world's sugar is produced from an entirely different plant, the sugar beet. A sugar beet is a pale, swollen root, somewhat similar in shape to a turnip, that grows buried in the fields of cooler climates.

Both plants store sugar, but they keep it in different places. Sugarcane holds its sugar in thick stems, whereas the beet packs it into the root. Each crop is grown where the weather suits it best. Cane requires warmth throughout the year, while beets flourish in cooler regions that would be far too cold for cane.

Turning either plant into sugar involves broadly similar steps. In a beet factory, the roots are washed and sliced into thin strips. The strips are soaked in hot water, which draws the sugar out and leaves the fibrous pulp behind. The sweet juice is then cleaned and boiled until much of its water has evaporated. As the syrup thickens, sugar crystals begin to form, and they are spun out of the liquid.

Here is the surprising part. Once the sugar has been refined, a spoonful from a beet and a spoonful from cane look identical, taste identical and behave identically in a recipe. The leftover pulp is frequently given to farm animals as feed.

Questions

1. In which part of the plant does a sugar beet store its sugar?

_____

_____

2. In which part of the plant does sugarcane hold its sugar?

_____

_____

3. Why are beets grown in regions where cane is not?

_____

_____

4. How is the sugar drawn out of the sliced beet strips?

_____

_____

5. What begins to happen as the cleaned syrup thickens?

_____

_____

6. Why does it make no difference in a recipe which plant the sugar came from?

_____

_____

Words to know

sugarcane: a tall tropical grass with sweet stems
climate: the usual weather of a place over many years
pulp: the soft, wet leftovers of crushed plants
refined: cleaned and made pure
syrup: a thick, sweet liquid

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: The Sugar That Grows Underground

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

Circle: The Sugar That Grows Underground

Easier · 190 words · Flesch-Kincaid grade 2.2

1. In its root.
2. In its thick stems.
3. Beets do well where it is too cold for cane.
4. They are soaked in hot water.
5. Sugar crystals form.
6. Pure sugar from either plant looks, tastes and works the same.

Triangle: The Sugar That Grows Underground

This passage · 222 words · Flesch-Kincaid grade 5.2

1. In its root.
2. In its thick stems.
3. Beets do well in cooler regions that are too cold for cane.
4. They are soaked in hot water.
5. Sugar crystals form.
6. Refined sugar from either plant looks, tastes and acts the same.

Square: The Sugar That Grows Underground

Harder · 237 words · Flesch-Kincaid grade 7.5

1. In its swollen root.
2. In its thick stems.
3. Beets flourish in cooler regions that would be far too cold for cane.
4. The strips are soaked in hot water.
5. Sugar crystals begin to form.
6. Refined sugar from either plant looks, tastes and behaves identically.