Name: _____ Date: _____

A Sailmaker Turns Flat Cloth Into a Curve

Circle group

A sail looks simple, but a good one is not flat. A flat sheet of cloth would flap in the wind. It would waste much of its push. A sail with a gentle curve holds the wind better. It is like the belly of a puffed-out shirt. It pulls the boat forward in a steady way. The sailmaker builds that curve into the cloth in the shop.

The cloth is not bent into shape by magic. The sailmaker cuts the sail from many narrow panels. Each panel has a slightly curved edge. The panels are stitched or glued together. The curved edges pull on each other. That shapes the whole sail into a smooth curve. The plan for the cuts is made with care. One small mistake in one panel can spoil the whole sail.

The sailmaker also thinks about strain. A sail is pulled hard at its corners. So those spots get extra layers of cloth and strong stitching. Each boat needs its own kind of sail. A racing boat wants a sail that is stiff and light. A boat on a long trip wants a sail that is tough and easy to fix.

Many sailmakers go out on the water to see how their sails work. They watch the cloth fill with wind. Then they know how to make the next sail better.

Questions

1. Why is a flat sail not a good one?

_____

_____

2. How does the sailmaker build the curve?

_____

_____

3. Why do the corners of a sail get extra layers?

_____

_____

4. How does a racing sail differ from a long trip sail?

_____

_____

5. Why can one small mistake in a panel spoil the sail?

_____

_____

6. Why do sailmakers go out on the water?

_____

_____

Words to know

sailmaker: a person who designs and sews sails for boats
panels: flat pieces that are joined to make something larger
strain: the force that pulls or stretches something
stitching: rows of thread sewn through cloth to hold it together

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: _____

A Sailmaker Turns Flat Cloth Into a Curve

Triangle group

A sail seems simple, but a good one is not flat. A flat sheet of cloth would flap in the wind and waste much of its push. A sail with a gentle curve, like the belly of a puffed-out shirt, holds the wind and pulls the boat forward more steadily. The sailmaker's job is to build that curve into the cloth before the sail ever leaves the shop.

Cloth is not bent into shape by magic. Instead, the sailmaker cuts the sail from many narrow panels, and each panel is cut with a slightly curved edge. When the panels are stitched or glued together, the curved edges pull against one another and shape the whole sail into a smooth curve. The plan for those cuts is made with care, since a small mistake in one panel can spoil the whole sail.

The sailmaker also thinks about strain. A sail gets pulled hard at its corners, so those spots are strengthened with extra layers of cloth and strong stitching. Different boats need different sails. A racing boat wants a sail that is stiff and light, while a boat on a long trip wants a sail that is tough and easy to repair.

Many sailmakers go out on the water to see how their work behaves. By watching the cloth fill with wind, they learn how to build the next sail even better.

Questions

1. Why is a flat sail not a good one?

_____

_____

2. How does the sailmaker build the curve into the sail?

_____

_____

3. Why are the corners of a sail strengthened?

_____

_____

4. How is a sail for a racing boat different from one for a long trip?

_____

_____

5. Why might a small mistake in one panel spoil the sail?

_____

_____

6. Why do sailmakers go out on the water?

_____

_____

Words to know

sailmaker: a person who designs and sews sails for boats
panels: flat pieces that are joined to make something larger
strain: the force that pulls or stretches something
stitching: rows of thread sewn through cloth to hold it together
steadily: in a smooth way, without sudden changes

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: _____

A Sailmaker Turns Flat Cloth Into a Curve

Square group

A sail may seem like a simple object, but a truly good one is not flat. A flat sheet of cloth would flap uselessly in the wind and squander much of its pushing power. A sail with a gentle curve, resembling the belly of a puffed-out shirt, captures the wind and draws the boat forward far more steadily. The sailmaker's task is to build that curve into the cloth long before the sail ever leaves the shop.

Cloth cannot simply be bent into shape by wishing. Instead, the sailmaker cuts the sail from many narrow panels, and each panel is given a slightly curved edge. When the panels are stitched or glued together, those curved edges pull against one another and coax the entire sail into a smooth, graceful curve. The pattern for these cuts is prepared with great care, since one small error in a single panel can spoil the whole sail.

The sailmaker must also consider strain. A sail is tugged especially hard at its corners, so those places are reinforced with additional layers of cloth and heavy stitching. Different boats call for different sails. A racing boat benefits from a sail that is stiff and light, whereas a boat making a long voyage needs a sail that is tough and easy to repair.

Many sailmakers venture out onto the water to observe how their work performs. By watching the cloth fill with wind, they discover how to build the next sail even better.

Questions

1. Why is a perfectly flat sail a poor choice?

_____

_____

2. How does the sailmaker build the curve into the sail?

_____

_____

3. Why are the corners of a sail reinforced?

_____

_____

4. How does a sail for a racing boat differ from one for a long voyage?

_____

_____

5. Why can a single small error in one panel spoil the whole sail?

_____

_____

6. Why do many sailmakers venture out onto the water?

_____

_____

Words to know

sailmaker: a person who designs and sews sails for boats
panels: flat pieces that are joined to make something larger
strain: the force that pulls or stretches something
stitching: rows of thread sewn through cloth to hold it together
steadily: in a smooth way, without sudden changes

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: A Sailmaker Turns Flat Cloth Into a Curve

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

Circle: A Sailmaker Turns Flat Cloth Into a Curve

Easier · 226 words · Flesch-Kincaid grade 2.1

1. It would flap in the wind and waste much of its push.
2. By cutting panels with slightly curved edges and joining them.
3. A sail is pulled hard at its corners.
4. The racing sail is stiff and light. The long trip sail is tough and easy to fix.
5. The panels work together to make the curve, so one wrong cut changes the whole shape.
6. To see how the sails work so they can make better ones.

Triangle: A Sailmaker Turns Flat Cloth Into a Curve

This passage · 232 words · Flesch-Kincaid grade 5.6

1. It would flap in the wind and waste much of its push.
2. By cutting panels with slightly curved edges and joining them together.
3. A sail gets pulled hard at its corners.
4. The racing sail is stiff and light, while the long trip sail is tough and easy to repair.
5. The panels work together to make the curve, so one wrong cut changes the whole shape.
6. To watch how the sails behave so they can build better ones.

Square: A Sailmaker Turns Flat Cloth Into a Curve

Harder · 247 words · Flesch-Kincaid grade 7.6

1. It would flap uselessly in the wind and squander much of its pushing power.
2. By cutting narrow panels with slightly curved edges and stitching or gluing them together.
3. A sail is tugged especially hard at its corners.
4. The racing sail is stiff and light, while the voyage sail is tough and easy to repair.
5. The panels work together to form the curve, so one wrong cut alters the entire shape.
6. To observe how their sails perform so that they can build better ones.