Name: _____ Date: _____

The Tiny Ball Inside a Pen

Circle group

Long ago, people wrote with feather quills. They dipped the quill in a bottle of ink. They wrote a few words. Then they dipped again. Sometimes the ink dripped and made a blot.

People wanted a pen that held its own ink. The ballpoint pen was a smart answer. At the tip is a tiny metal ball in a small socket. Behind the ball is a tube of thick ink.

When you write, the ball rolls on the paper. It picks up a little ink and puts it on the page. It works like a tiny paint roller. When you stop, the ball sits in the socket. It works like a plug. The ink stays in.

The ink must be thick so it does not run out. It must also flow when the ball rolls. It dries fast, so it does not smear.

Questions

1. What did people write with long ago?

_____

_____

2. What is at the tip of a ballpoint pen?

_____

_____

3. What does the ball do when you write?

_____

_____

4. What keeps ink from leaking when you stop?

_____

_____

5. Why does the ink dry fast?

_____

_____

6. Why is the ink in the pen thick, not watery?

_____

_____

Words to know

quills: pens made from the long feathers of large birds
blot: a spot or stain made by a drop of ink
socket: a small hollow place that holds a part in place
roller: a tool shaped like a tube that spreads paint as it turns
smear: to spread wet ink or paint by accident

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 Tiny Ball Inside a Pen

Triangle group

Long ago, people wrote with feather quills. They dipped the tip into a bottle of ink and wrote a few words. Then they had to dip again. If they were not careful, the ink dripped and made a blot on the page.

Inventors wanted a pen that could carry its own ink and not make a mess. The ballpoint pen was a clever answer. Look at the tip of one and you will see a tiny metal ball held in a small socket. Behind the ball is a tube of thick ink.

When you write, the ball touches the paper and rolls. As it turns, it picks up a little ink from the tube and rolls it onto the page. The ball works like a very small paint roller. It is also a plug. When you are not writing, the ball sits snugly in the socket and keeps the ink from leaking out.

The ink has to be just right. It must be thick enough not to run out by itself, yet thin enough to flow when the ball rolls. It also dries fast, so your writing does not smear when your hand moves across it.

Questions

1. What did people write with long ago?

_____

_____

2. What is found at the tip of a ballpoint pen?

_____

_____

3. What does the ball do when you write?

_____

_____

4. What keeps ink from leaking when you are not writing?

_____

_____

5. Why does the ink need to dry fast?

_____

_____

6. Why is the ink in a ballpoint pen thick instead of watery?

_____

_____

Words to know

quills: pens made from the long feathers of large birds
blot: a spot or stain made by a drop of ink
socket: a small hollow place that holds a part in place
roller: a tool shaped like a tube that spreads paint as it turns
smear: to spread wet ink or paint by accident

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 Tiny Ball Inside a Pen

Square group

Long ago, people wrote with feather quills. They dipped the tip into a bottle of ink and managed to write a few words before having to dip again. If they were careless, the ink dripped from the quill and left an ugly blot on the page.

Inventors longed for a pen that could carry its own supply of ink without making a mess, and the ballpoint pen turned out to be a clever answer. Look closely at the tip of one and you will notice a tiny metal ball held in a small socket, with a tube of thick ink sitting just behind it.

As you write, the ball presses against the paper and rolls. While it turns, it picks up a little ink from the tube and spreads it onto the page, much like a very small paint roller. The ball is also a plug. When you are not writing, it rests snugly in the socket and prevents the ink from leaking out.

The ink has to be formulated just right. It must be thick enough not to run out on its own, yet thin enough to flow when the ball rolls. It also dries quickly, so your writing does not smear when your hand moves across it.

Questions

1. What did people write with long ago?

_____

_____

2. What can be found at the tip of a ballpoint pen?

_____

_____

3. What does the ball do while you write?

_____

_____

4. What prevents ink from leaking when you are not writing?

_____

_____

5. Why is it important that the ink dries quickly?

_____

_____

6. Why is the ink in a ballpoint pen thick rather than watery?

_____

_____

Words to know

quills: pens made from the long feathers of large birds
blot: a spot or stain made by a drop of ink
socket: a small hollow place that holds a part in place
roller: a tool shaped like a tube that spreads paint as it turns
smear: to spread wet ink or paint by accident

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 Tiny Ball Inside a Pen

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

Circle: The Tiny Ball Inside a Pen

Easier · 143 words · Flesch-Kincaid grade 1.1

1. Feather quills dipped in ink.
2. A tiny metal ball in a small socket.
3. It rolls and puts ink on the paper.
4. The ball sits in the socket like a plug.
5. So it does not smear.
6. Watery ink would run out and leak. Thick ink stays until the ball rolls.

Triangle: The Tiny Ball Inside a Pen

This passage · 196 words · Flesch-Kincaid grade 3.2

1. Feather quills dipped in ink.
2. A tiny metal ball in a small socket.
3. It rolls, picks up ink and puts it on the paper.
4. The ball sits snugly in its socket like a plug.
5. So your writing does not smear when your hand moves across it.
6. Watery ink would run out of the tip by itself and leak, but thick ink stays put until the ball rolls.

Square: The Tiny Ball Inside a Pen

Harder · 209 words · Flesch-Kincaid grade 5.9

1. Feather quills dipped in bottles of ink.
2. A tiny metal ball held in a small socket.
3. It rolls, picks up ink from the tube and spreads it onto the paper.
4. The ball rests snugly in its socket like a plug.
5. So that your writing does not smear when your hand moves across it.
6. Watery ink would run out of the tip on its own and leak, while thick ink stays put until the ball rolls.