Name: _____ Date: _____

What Happens to Clay Inside the Kiln

Circle group

A pot made of wet clay is soft and easy to shape. But it would melt away in the rain. To make it last, a potter bakes it in a special oven called a kiln. The clay changes in ways that cannot be undone. So firing is the most important step in making pottery.

Before the kiln, the pot must dry all the way. Clay holds water. If a damp pot heats too fast, the water turns to steam and pushes outward. The pressure can crack the pot. So potters let their work dry for days. In the kiln, they raise the heat a little at a time.

As the heat climbs, the clay goes through stages. First, the last bit of water leaves. Then, at very high heat, the tiny bits of clay fuse together. The clay turns hard and strong. It also shrinks. A pot may come out smaller than it went in. So makers shape their work a little larger than they want it to end up.

Many pieces are fired twice. The first firing makes a chalky form with tiny holes. It is called bisque. Then the potter dips it in a glaze. A glaze is a mix of minerals. It looks dull and powdery at first. In a second firing, the glaze melts into a smooth, glassy coat. Glaze seals the surface, so a bowl can hold water. It can also add color.

Opening a kiln is a surprise, since glazes often change color in the heat. Potters wait until the kiln is cool enough to touch.

Questions

1. What is the name of the special oven used to bake clay?

_____

_____

2. Why must a pot dry all the way before firing?

_____

_____

3. What happens to the tiny bits of clay at very high heat?

_____

_____

4. What is bisque?

_____

_____

5. Why do makers shape a pot a little larger than they want it to end up?

_____

_____

6. Why can a glazed bowl hold water?

_____

_____

Words to know

kiln: a very hot oven used to harden clay
fuse: to join together as if melted into one
glaze: a glassy coating melted onto pottery
bisque: clay that has been fired once and not yet glazed

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: _____

What Happens to Clay Inside the Kiln

Triangle group

A pot made of wet clay is soft and easy to shape, but it would melt away in the rain. To turn it into something permanent, a potter must bake it in a special oven called a kiln. The process changes the clay in ways that cannot be reversed, which is why firing is the most important step in making pottery.

Before the kiln, the pot must be dried completely. Clay holds water, and if a damp piece is heated too quickly, the water inside turns to steam and expands. The pressure can crack the pot or even blow a piece off. Potters let their work dry slowly for days, and in the kiln they raise the temperature a little at a time.

As the heat climbs, the clay passes through stages. First, the last bit of water leaves. Then, at much higher temperatures, the tiny particles of clay begin to fuse together, and the material turns hard and strong. It also shrinks. A pot may end up noticeably smaller than it was when it went in, so makers shape their work a little larger than they want the final piece to be.

Many pieces are fired twice. The first firing produces a porous, chalky form called bisque. The potter then dips it in a glaze, a mixture of minerals that looks dull and powdery at first. In a second firing, the glaze melts into a smooth, glassy coating. Because glaze seals the surface, it makes a bowl waterproof, and it can also create color.

Opening a kiln after the cooling period is a moment of surprise, since glazes often change color in the heat. Potters wait until the kiln is cool enough to touch before they look.

Questions

1. What is the name of the special oven used to bake clay?

_____

_____

2. Why must a pot be dried completely before firing?

_____

_____

3. What happens to the clay particles at very high temperatures?

_____

_____

4. What is bisque?

_____

_____

5. Why do makers shape a pot a little larger than they want the final piece to be?

_____

_____

6. Why does a glazed bowl hold water?

_____

_____

Words to know

kiln: a very hot oven used to harden clay
fuse: to join together as if melted into one
porous: full of tiny holes that let liquid pass through
glaze: a glassy coating melted onto pottery
bisque: clay that has been fired once and not yet glazed

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: _____

What Happens to Clay Inside the Kiln

Square group

A vessel formed from wet clay is soft and easy to shape, but it would dissolve in the rain. To transform it into something permanent, a potter must bake it in a special oven called a kiln. The process alters the clay in ways that can never be reversed, which is why firing is the most critical stage in making pottery.

Before it enters the kiln, the pot must be dried completely. Clay holds water, and if a damp piece is heated too rapidly, the moisture inside turns to steam and expands. The resulting pressure can crack the pot or even blast a fragment from its surface. Potters therefore allow their work to dry gradually over several days, and in the kiln they raise the temperature a little at a time.

As the heat climbs, the clay passes through distinct stages. First, the last traces of water escape. Then, at far higher temperatures, the minute particles of clay begin to fuse together, and the material becomes hard and strong. It also shrinks. A pot may emerge noticeably smaller than it was when it went in, so makers shape their work slightly larger than the size they want the final piece to be.

Many pieces are fired twice. The first firing produces a porous, chalky form known as bisque. The potter then dips it in a glaze, a mixture of minerals that looks dull and powdery at first. During a second firing, the glaze melts into a smooth, glassy coating. Because glaze seals the surface, it renders a bowl waterproof, and it can also create color.

Opening a kiln after the cooling period is a moment of genuine surprise, since glazes frequently change color in the heat. Potters wait until the kiln is cool enough to touch before they look inside.

Questions

1. What is the name of the special oven used to bake clay?

_____

_____

2. Why must a pot be dried completely before firing?

_____

_____

3. What happens to the minute particles of clay at far higher temperatures?

_____

_____

4. What is bisque?

_____

_____

5. Why do makers shape a pot slightly larger than the size they want the final piece to be?

_____

_____

6. Why does a glazed bowl hold water?

_____

_____

Words to know

kiln: a very hot oven used to harden clay
fuse: to join together as if melted into one
porous: full of tiny holes that let liquid pass through
glaze: a glassy coating melted onto pottery
bisque: clay that has been fired once and not yet glazed

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: What Happens to Clay Inside the Kiln

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

Circle: What Happens to Clay Inside the Kiln

Easier · 262 words · Flesch-Kincaid grade 2.6

1. A kiln.
2. Water inside would turn to steam and could crack the pot.
3. They fuse together, and the clay turns hard and strong.
4. The chalky form of a pot after the first firing.
5. Clay shrinks during firing.
6. The glaze melts into a glassy coat that seals the surface.

Triangle: What Happens to Clay Inside the Kiln

This passage · 288 words · Flesch-Kincaid grade 6.5

1. A kiln.
2. Water inside would turn to steam and could crack the pot.
3. They fuse together, and the clay turns hard and strong.
4. The porous, chalky form of a pot after the first firing.
5. Clay shrinks during firing.
6. The glaze melts into a glassy coating that seals the surface.

Square: What Happens to Clay Inside the Kiln

Harder · 300 words · Flesch-Kincaid grade 7.6

1. A kiln.
2. Moisture inside would turn to steam and could crack the pot.
3. They fuse together, and the material becomes hard and strong.
4. The porous, chalky form of a pot after the first firing.
5. Clay shrinks during firing.
6. The glaze melts into a glassy coating that seals the surface.