Name: _____ Date: _____

Betelgeuse Is Orange and Rigel Is Blue

Circle group

Most stars look white at night. But a few show a bit of color. In Orion, a bright star named Betelgeuse looks orange-red. Another bright star there, named Rigel, looks blue-white.

These colors are clues. The color of a star tells astronomers how hot its surface is. Think of a metal rod in a fire. First it glows dull red. When it gets hotter, it turns orange, then yellow, then white. Stars follow the same pattern. A red star is cooler than a yellow star. A blue star is hotter than all of them. Our sun is in the middle. It shines yellow-white.

Cooler stars are still very hot. Even a red star is far hotter than any oven on Earth. Cool just means cooler than the other stars.

It is hard to see star colors with just your eyes. In dim light, we can not tell colors well. Binoculars help. So do cameras that collect light for a long time.

Questions

1. What color does Betelgeuse look?

_____

_____

2. What does a star's color tell astronomers?

_____

_____

3. Which is hotter, a red star or a blue star?

_____

_____

4. Why does the passage talk about a metal rod in a fire?

_____

_____

5. Is a red star cold? How do you know?

_____

_____

6. What helps you see star colors?

_____

_____

Words to know

surface: the outside layer of something
pattern: something that happens in the same order again and again
binoculars: a pair of small telescopes that you hold up to both eyes

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: _____

Betelgeuse Is Orange and Rigel Is Blue

Triangle group

On a clear night, most stars look white. If you look carefully, though, a few show a hint of color. In the group of stars called Orion, one bright star named Betelgeuse looks orange-red. Another bright star in the same group, named Rigel, looks blue-white.

These colors are clues. The color of a star tells astronomers how hot its surface is. Think about a metal rod heated in a fire. First it glows a dull red. As it gets hotter, it turns orange, then yellow, and finally white. Stars follow the same pattern. A star that looks red is cooler than a star that looks yellow, and a blue star is hotter than all of them. Our own sun is somewhere in the middle, and it shines with a yellow-white light.

Notice that the cooler stars are still extremely hot. Even a red star is far hotter than any oven on Earth. The words cool and hot only compare one star with another.

It can be hard to see star colors with just your eyes, because dim light makes it difficult for us to tell colors apart. Binoculars help, and so do cameras that collect light for a longer time. With a little patience, you can find the color of a star for yourself and guess how hot it is.

Questions

1. What color does Betelgeuse look?

_____

_____

2. What does the color of a star tell astronomers?

_____

_____

3. Which is hotter, a red star or a blue star?

_____

_____

4. Why does the passage compare stars to a metal rod in a fire?

_____

_____

5. Is a red star cold? How do you know?

_____

_____

6. What can help you see star colors better?

_____

_____

Words to know

surface: the outside layer of something
pattern: something that happens in the same order again and again
compare: to look at how two things are alike or different
binoculars: a pair of small telescopes that you hold up to both eyes
patience: being able to wait calmly

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: _____

Betelgeuse Is Orange and Rigel Is Blue

Square group

On a clear night, the majority of stars appear white, but a careful observer will notice that a few of them carry a distinct tint. In the constellation Orion, the bright star Betelgeuse glows orange-red, while another brilliant star in the same constellation, Rigel, shines with a blue-white light.

These colors are valuable clues. The color of a star tells astronomers how hot its surface is. Consider a metal rod that is heated in a fire: at first it glows a dull red, and as the temperature rises it turns orange, then yellow, and eventually white. Stars follow the same pattern. A red star is cooler than a yellow one, and a blue star is hotter than any of them. Our own sun lies somewhere in the middle, giving off a yellow-white light.

It is important to remember that the so-called cooler stars are still unimaginably hot. Even a red star is far hotter than any oven on Earth, and the words cool and hot merely compare one star with another.

Star colors can be difficult to detect with unaided eyes, because dim light makes it hard for us to tell colors apart. Binoculars are a great help, as are cameras that gather light for a longer period of time. With a little patience, you can find a star's color for yourself and guess how hot it is.

Questions

1. What color does the star Betelgeuse glow?

_____

_____

2. What does the color of a star reveal to astronomers?

_____

_____

3. Which is hotter, a red star or a blue star?

_____

_____

4. Why does the passage compare stars to a heated metal rod?

_____

_____

5. Is a red star cold? How can you tell?

_____

_____

6. What can help you see the colors of stars?

_____

_____

Words to know

surface: the outside layer of something
pattern: something that happens in the same order again and again
compare: to look at how two things are alike or different
binoculars: a pair of small telescopes that you hold up to both eyes
patience: being able to wait calmly

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: Betelgeuse Is Orange and Rigel Is Blue

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

Circle: Betelgeuse Is Orange and Rigel Is Blue

Easier · 164 words · Flesch-Kincaid grade 2.2

1. Orange-red.
2. How hot its surface is.
3. A blue star.
4. A rod changes color as it gets hotter, and stars do too.
5. No. It is still far hotter than any oven on Earth.
6. Binoculars or cameras that collect light for a long time.

Triangle: Betelgeuse Is Orange and Rigel Is Blue

This passage · 223 words · Flesch-Kincaid grade 4.5

1. Orange-red.
2. How hot its surface is.
3. A blue star.
4. A rod changes color as it gets hotter, and stars follow the same pattern.
5. No. It is still far hotter than any oven on Earth and is only cooler than other stars.
6. Binoculars or cameras that collect light for longer.

Square: Betelgeuse Is Orange and Rigel Is Blue

Harder · 232 words · Flesch-Kincaid grade 8.4

1. Orange-red.
2. How hot its surface is.
3. A blue star.
4. A rod changes color as its temperature rises, and stars follow the same pattern.
5. No. It is still far hotter than any oven on Earth, and cool only compares it with other stars.
6. Binoculars, or cameras that gather light for a longer time.