Name: _____ Date: _____

Why a Spoon Looks Bent in Your Water Glass

Circle group

Put a spoon in a glass of water. Look at it from the side. The spoon looks bent. It looks bent right where the water starts. But the spoon is not bent. Lift it out. It is straight again.

This is a trick of light. Light goes in straight lines in the air. Then it goes from water into air. It turns a little. We say the light bends.

Your eyes do not know the light bent. They think the light came straight from the spoon. So your brain puts the spoon in the wrong spot. The spoon looks broken.

Light bends in a puddle too. A fish in a pond may look closer to the top than it is.

Questions

1. Where does the spoon look bent?

_____

_____

2. What happens when you lift the spoon out?

_____

_____

3. How does light go in the air?

_____

_____

4. What does light do when it goes from water into air?

_____

_____

5. Why does your brain put the spoon in the wrong spot?

_____

_____

6. What may look closer to the top than it is?

_____

_____

Words to know

bend: to turn so something is not straight
puddle: a small pool of water on the ground
trick: something that fools your 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: _____

Why a Spoon Looks Bent in Your Water Glass

Triangle group

Put a spoon in a clear glass of water and look at it from the side. The spoon seems to bend right where the water begins. But the spoon is not bent at all. Lift it out and it is straight again.

What you see is a trick of light. Light travels in straight lines through the air. When it moves from water into air, it changes speed and turns a little. Scientists say the light bends.

Your eyes do not know that the light bent. They think the light came straight from the spoon. So your brain places the underwater part of the spoon in the wrong spot, and the spoon looks broken.

Light bends the same way when it passes through a drinking glass or a puddle. A fish in a pond may look closer to the surface than it really is. The bending of light is a big reason why things look odd under water.

Questions

1. Where does the spoon seem to bend?

_____

_____

2. What happens when you lift the spoon out of the water?

_____

_____

3. How does light travel through the air?

_____

_____

4. What does light do when it moves from water into air?

_____

_____

5. Why does your brain place the spoon in the wrong spot?

_____

_____

6. What might look closer to the surface than it really is?

_____

_____

Words to know

bend: to turn so something is not straight
surface: the top of the water
puddle: a small pool of water on the ground
scientist: a person who studies how things work
trick: something that fools your 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: _____

Why a Spoon Looks Bent in Your Water Glass

Square group

Place a spoon in a clear glass of water and look at it from the side. The spoon appears to bend sharply at the exact spot where the water begins. In truth, the spoon has not changed shape at all. When you lift it out of the glass, it is perfectly straight again.

What you are seeing is an illusion caused by light. Light normally travels in straight lines through the air. However, when it passes from water into air, it changes speed and turns slightly. Scientists describe this by saying that the light bends.

Your eyes have no way of knowing that the light has bent. They assume it traveled straight from the spoon to you. As a result, your brain places the underwater part of the spoon in the wrong position, and the spoon looks broken.

Light bends in the same way when it passes through a drinking glass or a puddle. A fish swimming in a pond may look closer to the surface than it actually is. The bending of light is a major reason why objects look strange under water.

Questions

1. Where does the spoon appear to bend?

_____

_____

2. What happens when you lift the spoon out of the glass?

_____

_____

3. How does light normally travel through the air?

_____

_____

4. What does light do when it passes from water into air?

_____

_____

5. Why does your brain place the spoon in the wrong position?

_____

_____

6. What may look closer to the surface than it actually is?

_____

_____

Words to know

bend: to turn so something is not straight
surface: the top of the water
puddle: a small pool of water on the ground
scientist: a person who studies how things work

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: Why a Spoon Looks Bent in Your Water Glass

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

Circle: Why a Spoon Looks Bent in Your Water Glass

Easier · 120 words · Flesch-Kincaid grade -0.3

1. Right where the water starts.
2. It is straight again.
3. In straight lines.
4. It turns a little.
5. Your eyes think the light came straight from the spoon, but it bent.
6. A fish in a pond.

Triangle: Why a Spoon Looks Bent in Your Water Glass

This passage · 158 words · Flesch-Kincaid grade 2.5

1. Right where the water begins.
2. It is straight again.
3. In straight lines.
4. It changes speed and turns a little.
5. Your eyes think the light came straight from the spoon, but it had bent.
6. A fish in a pond.

Square: Why a Spoon Looks Bent in Your Water Glass

Harder · 184 words · Flesch-Kincaid grade 4.5

1. At the exact spot where the water begins.
2. It is perfectly straight again.
3. In straight lines.
4. It changes speed and turns slightly.
5. Your eyes assume the light traveled straight from the spoon, but it had bent.
6. A fish swimming in a pond.