Name: _____ Date: _____

The Octopus and Its Color-Changing Skin

Circle group

An octopus has no shell, no bones and no spines. It is soft all over. It needs other ways to stay safe. One of its best tools is its skin.

The skin is full of tiny sacs of color called chromatophores. Small muscles circle each sac. When the muscles pull, the sac stretches wide and the color shows. When they relax, the sac shrinks and the color fades. The octopus controls this with its nerves, so a change is very fast.

By stretching different sacs, the octopus can match a brown rock or green seaweed. Other cells in its skin reflect light. The octopus can also raise small bumps to look rough like coral.

Color helps in more than one way. An octopus can hide from a fish, and it can sneak up on a crab. Some octopuses flash bright patterns to startle an enemy and then blend in again.

Scientists are still learning how an octopus knows what to copy. It is still a puzzle.

Questions

1. What are chromatophores?

_____

_____

2. How does an octopus make a color show?

_____

_____

3. What can an octopus do to look rough like coral?

_____

_____

4. Why does an octopus need other ways to stay safe?

_____

_____

5. Name two ways color helps an octopus?

_____

_____

6. What is still a puzzle for scientists?

_____

_____

Words to know

spines: sharp, stiff points on an animal's body
chromatophores: tiny sacs of color in the skin
relax: to loosen up
reflect: to bounce light back
startle: to surprise and scare for a moment

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 Octopus and Its Color-Changing Skin

Triangle group

An octopus has no shell, no bones and no spines. It is soft all over, so it needs other ways to stay safe. One of its best tools is its skin.

The skin is covered with thousands of tiny sacs of color called chromatophores. Each sac is circled by small muscles. When the muscles pull, the sac stretches wide and the color shows. When they relax, the sac shrinks and the color fades. The octopus controls this with its nerves, so a change can happen in a blink.

By stretching different sacs at once, the octopus can match the browns of a rock or the greens of seaweed. Other cells in its skin reflect light and add shine. The octopus can also raise small bumps on its skin to look rough like coral.

Color helps in more than one way. An octopus can hide from a hungry fish, and it can sneak up on a crab. Some octopuses flash bright patterns to startle an enemy, then change to blend in again.

Scientists are still learning how an octopus knows what to copy. Its eyes see well, but they do not see color the way ours do. How it matches its background so well is still a puzzle.

Questions

1. What are chromatophores?

_____

_____

2. How does an octopus make a color show?

_____

_____

3. What can an octopus do to look rough like coral?

_____

_____

4. Why does an octopus need other ways to stay safe?

_____

_____

5. Name two ways color helps an octopus?

_____

_____

6. What is still a puzzle for scientists?

_____

_____

Words to know

spines: sharp, stiff points on an animal's body
chromatophores: tiny sacs of color in the skin
relax: to loosen up
reflect: to bounce light back
startle: to surprise and scare for a moment

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 Octopus and Its Color-Changing Skin

Square group

An octopus possesses no shell, no bones and no spines. It is soft from head to arm tip, so it must rely on other ways of staying safe. One of its finest tools is its skin.

The skin is studded with thousands of tiny sacs of color called chromatophores. Each sac is encircled by small muscles. When the muscles pull, the sac stretches wide and the color becomes visible. When they relax, the sac shrinks and the color fades. The octopus directs this process through its nerves, so a change can happen in the blink of an eye.

By stretching different sacs at the same moment, the octopus can match the browns of a rock or the greens of seaweed. Other cells in its skin reflect light and add a shimmer. The octopus can also raise small bumps on its skin so that it looks rough like coral.

Color helps in more than one way. An octopus can hide from a hungry fish, and it can creep up on a crab without being noticed. Some octopuses flash bright patterns to startle an enemy, then change quickly to blend in again.

Scientists are still working out how an octopus knows what to copy. Its eyes see well, but they do not perceive color the way ours do. How it matches its background so accurately remains a puzzle.

Questions

1. What are chromatophores?

_____

_____

2. How does an octopus make a color become visible?

_____

_____

3. What can an octopus do so that it looks rough like coral?

_____

_____

4. Why must an octopus rely on other ways of staying safe?

_____

_____

5. Name two ways color helps an octopus?

_____

_____

6. What remains a puzzle for scientists?

_____

_____

Words to know

spines: sharp, stiff points on an animal's body
chromatophores: tiny sacs of color in the skin
relax: to loosen up
reflect: to bounce light back
startle: to surprise and scare for a moment

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 Octopus and Its Color-Changing Skin

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

Circle: The Octopus and Its Color-Changing Skin

Easier · 166 words · Flesch-Kincaid grade 3.5

1. Tiny sacs of color in the octopus's skin.
2. Small muscles pull the sac wide and the color shows.
3. It can raise small bumps on its skin.
4. It has no shell, bones or spines.
5. It can hide from enemies and sneak up on food such as crabs.
6. How the octopus knows what to copy.

Triangle: The Octopus and Its Color-Changing Skin

This passage · 207 words · Flesch-Kincaid grade 4

1. Tiny sacs of color in the octopus's skin.
2. Small muscles pull the sac wide and the color shows.
3. It can raise small bumps on its skin.
4. It has no shell, bones or spines to protect it.
5. It can hide from enemies and it can sneak up on food such as crabs.
6. How the octopus knows what to copy to match its background.

Square: The Octopus and Its Color-Changing Skin

Harder · 226 words · Flesch-Kincaid grade 5.2

1. Tiny sacs of color in the octopus's skin.
2. Small muscles pull the sac wide and the color shows.
3. It can raise small bumps on its skin.
4. It has no shell, bones or spines to protect it.
5. It can hide from enemies and creep up on food such as crabs.
6. How the octopus knows what to copy to match its background.