Name: _____ Date: _____

Why You Stop Smelling Your Own House

Circle group

Step into a friend's home and you smell it right away. Maybe it is coffee, a pet, or a candle. Ten minutes later, the smell is gone. Your friend hardly notices it at all. This is called sensory adaptation. It is not a problem with your nose. It is a useful feature.

Smell starts high inside the nose. A patch of tissue there has millions of receptor cells. Odor molecules float in with the air. They fit into the receptors like keys in locks. The cells send signals to the olfactory bulb at the front of the brain. The brain then knows what the smell is.

But if a smell stays the same, the receptors answer less and less. The brain pays less attention to it. Your nose is not worn out. It is tuned for change. A new smell, like smoke or spoiled food, matters more than an old smell that has always been there. So the brain turns the volume down on what stays the same.

Other senses do this too. You stop feeling a watch on your wrist. Your eyes adjust to a bright room. A few minutes in fresh air gets your sense of smell back. This is why experts want smoke and gas detectors in homes. You cannot always trust your nose, because it may stop noticing a smell that has been around for a while.

Questions

1. Where does the sense of smell start?

_____

_____

2. How do odor molecules fit the receptors?

_____

_____

3. Where do the signals go after the receptor cells?

_____

_____

4. Why does the brain ignore a smell that stays the same?

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_____

5. Why do experts want smoke and gas detectors in homes?

_____

_____

6. What gets your sense of smell back?

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_____

Words to know

adaptation: a change that makes a sense or body part fit its surroundings
receptor: a cell part that detects a certain signal or substance
olfactory: having to do with the sense of smell
molecules: extremely tiny pieces that make up all matter

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 You Stop Smelling Your Own House

Triangle group

Walk into a friend's home and you may notice its smell at once, perhaps coffee, a pet, or a scented candle. After ten minutes, the smell seems to vanish. Meanwhile, your friend, who lives there, hardly notices it at all. The explanation is a process called sensory adaptation, and it is not a failure of the nose. It is a feature.

Smell begins high inside the nose, where a patch of tissue holds millions of receptor cells. When odor molecules drift in with the air, they fit into receptors on these cells, much as keys fit into locks. The cells then send signals to the olfactory bulb at the front of the brain, which passes the message along so that the brain can identify the scent.

If a smell continues unchanged, however, the receptors respond less and less, and the brain pays less attention to the steady signal. The nose is not worn out. It is tuned for change. Noticing something new, such as smoke or spoiled food, matters more than keeping track of an odor that has been present all along. The brain turns down the volume on whatever stays the same.

Adaptation works for other senses too. After you put on a watch, the pressure on your wrist fades from your awareness, and your eyes adjust when you walk into a bright room. A few minutes in fresh air restores your sensitivity to smell. It is also why safety experts recommend smoke and gas detectors rather than trusting your nose alone, since a smell you have lived with for a while may no longer reach your attention.

Questions

1. Where does the sense of smell begin?

_____

_____

2. How do odor molecules fit into the receptors?

_____

_____

3. Where do the signals go after the receptor cells?

_____

_____

4. Why does the brain ignore a smell that never changes?

_____

_____

5. Why do safety experts recommend smoke and gas detectors?

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_____

6. What restores your sensitivity to smell?

_____

_____

Words to know

adaptation: a change that makes a sense or body part fit its surroundings
receptor: a cell part that detects a certain signal or substance
olfactory: having to do with the sense of smell
molecules: extremely tiny pieces that make up all matter
sensitivity: how easily something notices small changes

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 You Stop Smelling Your Own House

Square group

When you step into a friend's home, you may detect its characteristic smell immediately, whether it is brewing coffee, a family pet, or a scented candle. Within ten minutes, however, that smell appears to have vanished, while your friend, who lives there every day, scarcely registers it at all. The explanation is a process known as sensory adaptation, which is not a defect of the nose but rather a valuable feature of it.

Smell originates high inside the nose, where a patch of tissue contains millions of receptor cells. When odor molecules drift in with the air, they fit into receptors on these cells much as keys fit into locks. The cells then transmit signals to the olfactory bulb at the front of the brain, which relays the message so that the brain can identify the scent.

If a smell persists without changing, though, the receptors respond progressively less, and the brain devotes less attention to the unchanging signal. The nose has not become worn out. It is tuned for change. Noticing something new, such as smoke or spoiled food, matters far more than keeping track of an odor that has been present all along, so the brain effectively turns down the volume on whatever stays constant.

Adaptation operates in other senses as well. Once you put on a watch, the pressure against your wrist fades from your awareness, and your eyes adjust when you enter a brightly lit room. A few minutes in fresh air restores your sensitivity to smell. This is also why safety experts recommend smoke and gas detectors instead of relying on your nose alone, since a smell you have lived with for a while may no longer command your attention.

Questions

1. Where does the sense of smell originate?

_____

_____

2. How do odor molecules fit into the receptors?

_____

_____

3. Where do the receptor cells transmit their signals?

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_____

4. Why does the brain pay less attention to a smell that does not change?

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_____

5. Why do safety experts recommend detectors rather than relying on your nose?

_____

_____

6. What restores your sensitivity to smell?

_____

_____

Words to know

adaptation: a change that makes a sense or body part fit its surroundings
receptor: a cell part that detects a certain signal or substance
olfactory: having to do with the sense of smell
molecules: extremely tiny pieces that make up all matter
sensitivity: how easily something notices small changes

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 You Stop Smelling Your Own House

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

Circle: Why You Stop Smelling Your Own House

Easier · 231 words · Flesch-Kincaid grade 2.8

1. High inside the nose, where receptor cells sit.
2. Like keys fit in locks.
3. To the olfactory bulb at the front of the brain.
4. The nose is tuned for change, and new smells matter more for safety.
5. Your nose can stop noticing a smell that has been around for a while.
6. A few minutes in fresh air.

Triangle: Why You Stop Smelling Your Own House

This passage · 269 words · Flesch-Kincaid grade 7.1

1. High inside the nose, where receptor cells sit.
2. Much as keys fit into locks.
3. To the olfactory bulb at the front of the brain.
4. The nose is tuned for change, and new smells matter more for staying safe.
5. Your nose adapts, so you might stop noticing a smell that has been there a while.
6. A few minutes in fresh air.

Square: Why You Stop Smelling Your Own House

Harder · 285 words · Flesch-Kincaid grade 10.2

1. High inside the nose, where millions of receptor cells are found.
2. Much as keys fit into locks.
3. To the olfactory bulb at the front of the brain.
4. The nose is tuned for change, and noticing something new matters more for staying safe.
5. Your nose adapts, so you may no longer notice a smell you have lived with for a while.
6. A few minutes in fresh air.