Grade 8 NTI Day #2 ELA
Teacher: Mrs. Lee

Text:
The Nose Knows: The Science of Smell
By Thomas Pool

Assignment Instruction:

- Task 1 – Read and Annotate the Informational Text
    - Underline key ideas and details
    - Make notes in the margin every few lines – write a summary or ask a question
- Task 2 – Complete the text dependent questions (1-9). Be sure to respond to short answer prompts with complete sentences.
- Task 3 – Complete the 3 Discussion questions. Be sure to respond in three to four complete sentences

Important:
This assignment will also be available in Google Classroom. Please feel free to contact Mrs. Lee with any questions via email: andrea.lee@pineville.kyschools.us

Name: _____ Class: _____

The Nose Knows: The Science of Smell

By Thomas Pool
2024

In this informational text, Thomas Pool explains the science of our sense of smell.

As you read, identify key details that support the main idea of paragraph 4.

[1] The scent of oatmeal, of freshly baked bread, of wet mud in the fields: have you ever wondered why smell can be so good at transporting you back to your early childhood? The smell of cake, wrapping paper, and fresh, unboxed plastic can hit your nose, suddenly flooding you with emotion and memories of birthdays from years past. It just seems to hit you differently than, say, watching an old home video of yourself opening up your birthday presents.

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While we rely on all of our five senses, smell is one of our most powerful links to memories. Why is this? The answer is linked to our very complicated brains. The first four senses (touch, sight, hearing, and taste) are all sent up the highway of information from our nervous system into our brains. These senses go first to the thalamus, a sort of post office for the brain, where messages are sorted and then sent off to the relevant parts of the brain including the amygdala, which processes emotion, and to the hippocampus, which stores memories.

Smell, however, takes a different path. Smell skips the thalamus and goes straight to the olfactory bulb, which processes scents. The olfactory bulb is directly connected to both the hippocampus and to the amygdala. Scientists think that this is why smells are able to powerfully evoke both memory as well as emotion in ways that the other senses can't. What you take in through smell takes a kind of shortcut and avoids your body's post office.

Scientists believe smell is so powerfully tied to memory because it is one of the first senses to evolve[1] in mammals. That may be the reason why smell skips the thalamus and taps directly into the centers of our brains that process memories and emotions. Smell was an extremely important sense that helped early mammals survive millions of years ago, and this importance has lingered in the structures of our brains. For example, the smell of petrichor – the powerful, earthy smell produced by rain falling on dry ground – contains a particle

1. **Evolve** ***(verb)*** to develop or change slowly

called geosmin, a molecule that's found in the soil. Scientists aren't quite sure why we love the smell of geosmin so much, but our noses are 200,000 times more sensitive to geosmin than a shark is to blood in water!

[5] "You walk into a hardware store, when all of a sudden you catch a whiff of something you haven't smelled in years," the vlogger and author Hank Green begins in his 2015 SciShow video "How Smells Trigger Memory." "Somehow the scent of glue immediately takes you back to your kindergarten classroom and you spend the next couple of minutes wondering 'whatever happened to that kid who used to eat all that paste?'"

Green discusses how studies have shown that memories linked to smells are more vividly experienced than memories triggered by the other senses. Studies have shown that smell tends to trigger memories of our early lives from before 10 years old.

"So it's possible," Green says, "that when you smelled that glue in kindergarten the signals got tangled up [in the memory parts of the brain] with memories of building blocks and apple juice. And when you smelled it again, later, you remembered not just the glue but also some of the associated memories [from kindergarten]."

Outside of its importance for our memories and emotions, smell still serves many practical purposes in our everyday lives. Smells that you find revolting[2] are warning you of danger, like rotten food or smoke. Smells that you like reassure you of its positivity, like the smell of fresh fruit or hot chocolate. Scientists have also found that smell plays a very important role for both babies and new parents, and may help us form stronger familial attachments at the beginning of our lives! Babies have a strong sense of smell and have been shown to prefer the scents of their own parents above those of strangers. Parents, on the other hand, have the very important (but very yucky!) ability to find the smell of their own babies' diapers less gross than those of other babies.

Smell is so important to us in every moment of our lives. This is why many scientists, doctors, and psychologists are now greatly concerned about the loss of smell that many patients experience who suffer from "Long Covid"— the term medical experts are currently using for those who continue to have symptoms of Covid-19 long after infection. They are particularly concerned due to smell's ability to help us preserve our memories and have found that patients who have lost their smell have greater memory problems than those who didn't. They worry that this may lead many to develop early-onset dementia.[3] The consequences of this loss may not be fully understood for many years.

[10] Smell's amazing ability to store both emotion and memory can be a blessing and a curse. A smell can remind you of the happiest days of your life and some of the worst. It stays with us, deep and dormant[4] in our brains, and it surprises us with memories both sweet and bitter. So savor those smells: they'll be memories later.

2. disgusting
3. a disease that affects your memory
4. **Dormant** ***(adjective)*** inactive

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. Which statement best summarizes the central idea of the text?
    A. The sense of smell is the least important of our five senses.
    B. Scientists are studying why geosmin heightens patients' sense of smell.
    C. The thalamus is the part of the brain that regulates humans' ability to smell.
    D. Smell is a powerful sense that can trigger memories and emotions in people.

2. Why are scientists and doctors concerned about people who experience loss of smell due to Covid-19?
    A. They worry that people who experience loss of smell may be more likely to be infected by Covid-19 multiple times.
    B. They believe the loss of smell could be linked to problems with memory, including early-onset dementia.
    C. They believe that the loss of smell could cause people to participate in more dangerous activities.
    D. They think that the loss of smell may be connected to unpredictable changes in a person's mood.

3. Which detail best supports the idea that our sense of smell can keep us safe?
    A. "While we rely on all of our five senses, smell is one of our most powerful links to memories." (Paragraph 2)
    B. "Studies have shown that smell tends to trigger memories of our early lives from before 10 years old." (Paragraph 6)
    C. "Smells that you find revolting are warning you of danger, like rotten food or smoke." (Paragraph 8)
    D. "Smell's amazing ability to store both emotion and memory can be a blessing and a curse." (Paragraph 10)

4. The word "evoke" in paragraph 3 most closely means —
    A. erase.
    B. change.
    C. bring out.
    D. shut down.

5. How does paragraph 4 help to develop the central idea in the text?

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. What are some memories that are especially important to you? What smells do you associate with these memories? Using the text, explain why those memories and smells may be connected.

2. The author used many facts to support the idea that smell is a uniquely powerful sense for humans. Which fact was most surprising or interesting to you and why?

3. The author uses an analogy of a post office to describe the thalamus. How does this analogy better help you understand what happens in the human body? What is another analogy that you think would be helpful to explain this process?