



Science at HMS

How have the NGSS
changed science?









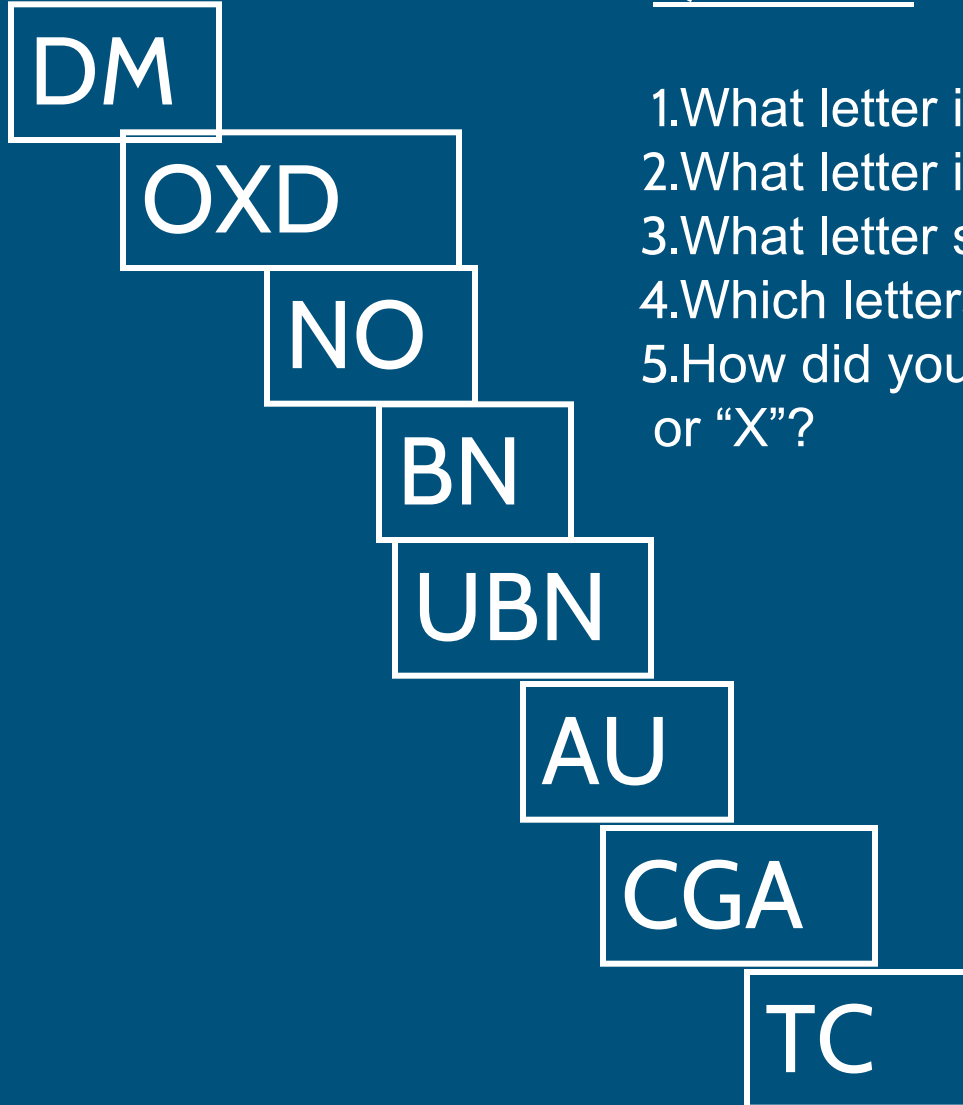


Activity # 1

- On your table, you have 8 large colored cards with nonsense letters on them.
- Your task is to determine what the correct sequence of the letters are.

M
D
X
O
N
B
U
A
G
C
T

Let's see how the layers stack up:



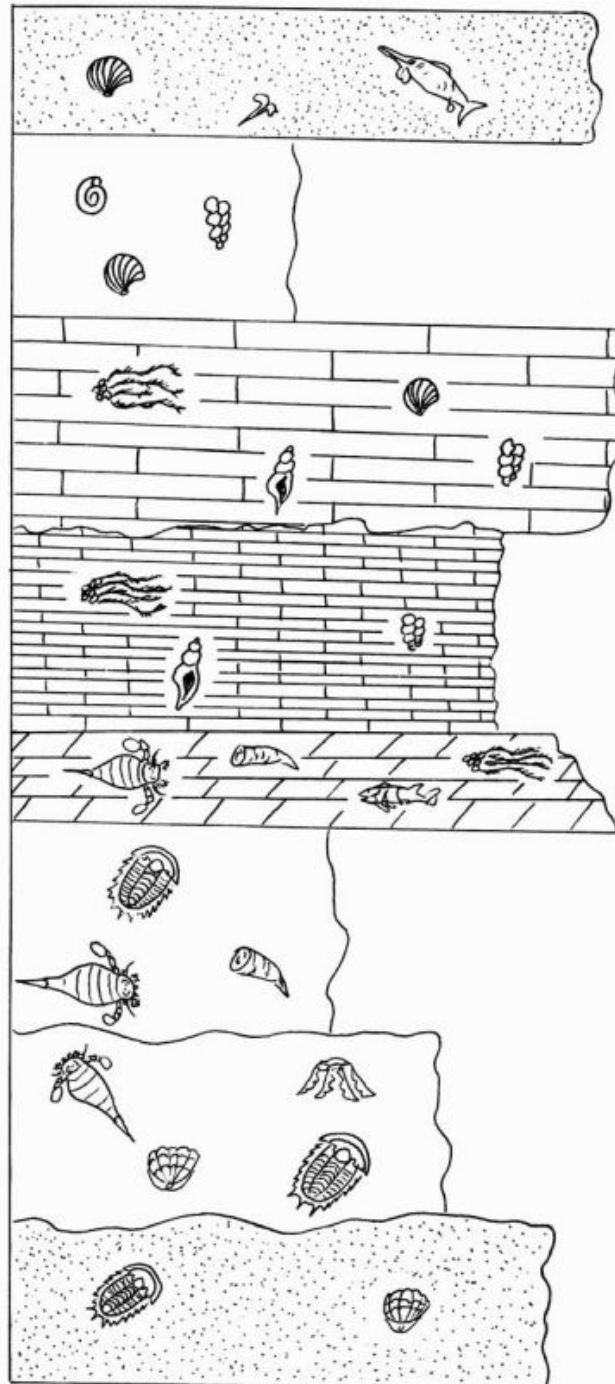
Questions:

1. What letter is the oldest?
2. What letter is the youngest?
3. What letter showed up the most?
4. Which letters only showed up once?
5. How did you know which was older: "M" or "X"?

Activity # 2

- Flip your eight index cards over
- Arrange the index cards that represent layers of rock and fossils in the correct order
- The oldest fossils are at the bottom, youngest fossils at the top

ORGANISMS



Key to rock units

- Sandstone
- Shale
- Limestone
- Dolomite

Key to fossils

- Shark's Tooth
- Ichthyosaur
- Ammonite
- Pelecypod
- Foraminifers
- Gastropod
- Crinoid
- Placoderm
- Horn Coral
- Eurypterid
- Graptolite
- Trilobite
- Brachiopod

To think about...

- What problems did you run into when trying to arrange the fossils into the correct sequence?
- Would this have been more difficult if you did not know which layer was the oldest to start the activity?
- Which organism is the most complex of all the fossils and why?

ENGAGE

- Provide a phenomenon, pique curiosity
- Access prior knowledge
- Get students thinking

You may hear:

"That's weird!", "Wow!", "Oooohhh...Aaahhhh..."

EXPLORE

- Provide hands-on explorations
- Resources connect phenomena to begin to make meaning
- Students ask questions and consider their own thinking
- Observations and data reinforce or challenge thinking

You may hear:

"Hmm...", "I wonder if..."

EXPLAIN

- Connect explorations to science content
- Use specific vocabulary, concepts & skills
- Share new understanding

You may hear:

"Aha!", "I get it!", "Look at how these relate...", "Now I know..."

ELABORATE/EXTEND

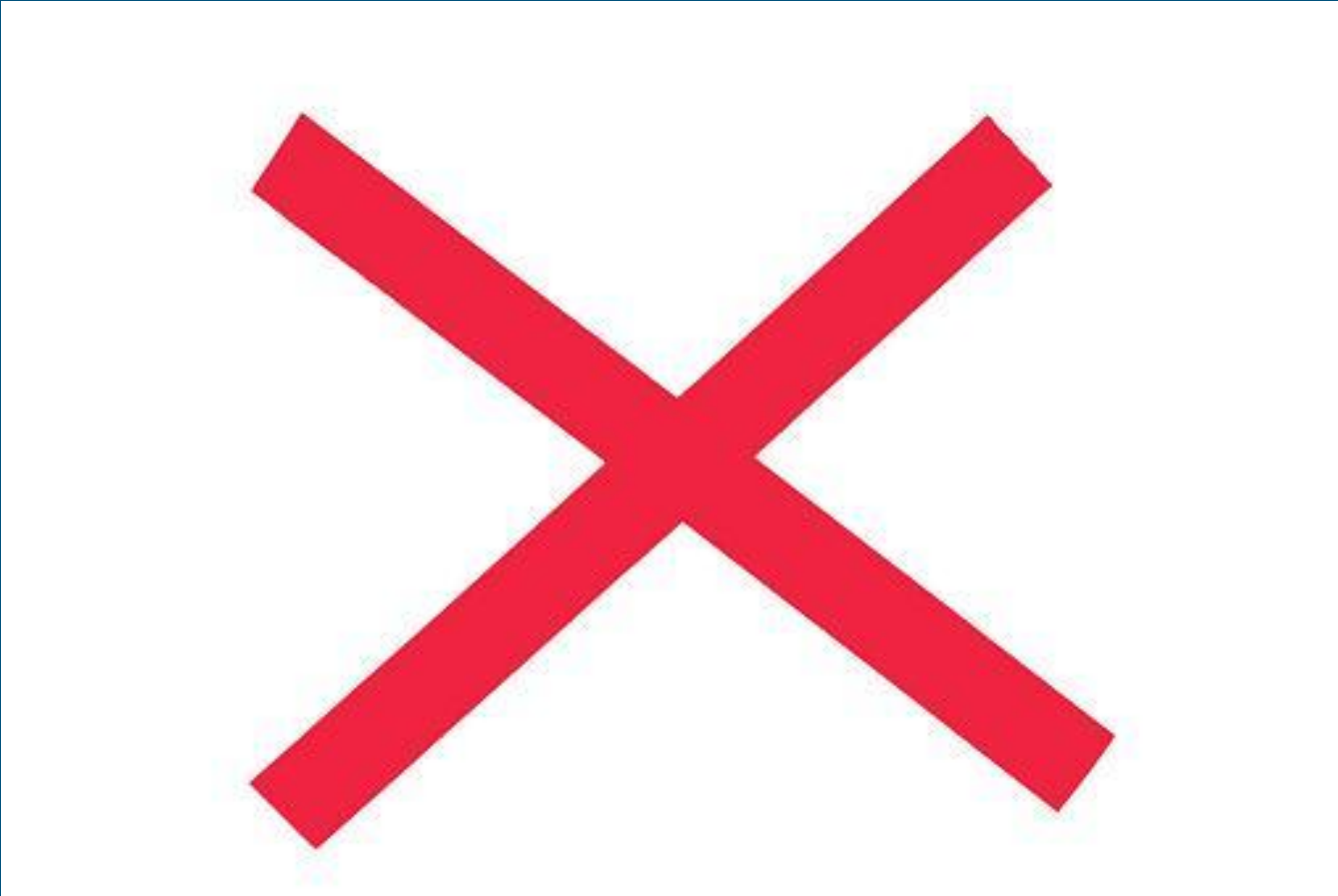
- Apply new learning to other situations
- Extend and connect to other related science concepts
- Use new science vocabulary to explain new understandings

You may hear:

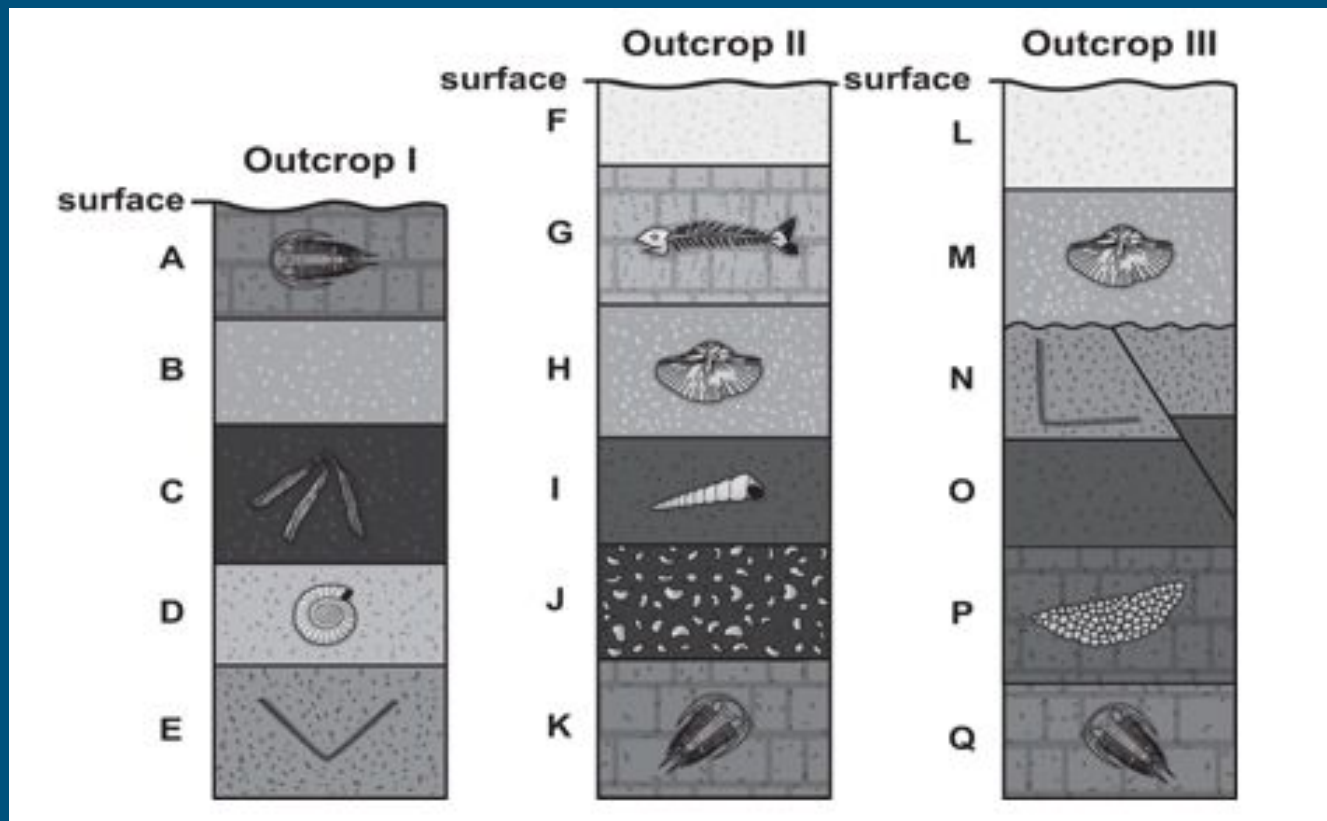
"So...", "And...", "What if...", "If I do..., then..."

EVALUATE

- Perform a task
- Solve a problem
- Assess and adjust previous misconceptions



Scientists find several fossils in rock outcrops as shown. Determine which layer of the outcrops is the oldest, and explain how you know.



Questions?