Clouds

Have you ever stared up at the sky and looked at the clouds? Maybe you tried to figure out what the clouds looked like and decided you saw a cloud that looked like a face or a dinosaur. Believe it or not, scientists have actually been classifying and naming clouds since the early 1800s. Different types of clouds actually have official names! Clouds are grouped into three different categories: cumulus, stratus, and cirrus. Although clouds are all formed in similar ways, each different type of cloud has its own distinct qualities.

You probably remember that clouds are part of the water cycle. Water evaporates from earth's surface after it is heated by the sun. When the water vapor (liquid water that has evaporated and changed into a gas) cools off enough, it condenses into tiny water droplets. These tiny water droplets then group themselves together to form the clouds that you see in the sky. Eventually, the group of droplets becomes large enough and the droplets fall to the ground as precipitation. Rain, hail, snow, and sleet are all types of precipitation. Once these droplets return to earth's surface in the form of precipitation, the water cycle starts all over again!

The white, fluffy clouds that you draw or glue onto your paper when you draw a picture of a sunny day are cumulus clouds. **Cumulus** clouds occur on sunny days, look like puffy cotton balls, and are mostly white with some hints of grey at the bottom. These clouds form low to the ground and are made up of water droplets. You'll never see cumulus clouds near Antarctica!

Unlike cumulus clouds, stratus clouds are a little trickier to see. **Stratus** clouds are grey in color, look like a blanket covering the sky, and don't have much definition. Mist and fog are types of stratus clouds. Stratus clouds appear very low in the sky and are made up of water droplets. These clouds are almost always a sure sign that rain or snow are near!

Cirrus clouds look like a mix between cumulus and stratus clouds. They are bright white like cumulus clouds, but they have a wispy shape like tails or paint brush strokes in the sky. Cirrus clouds form from falling ice crystals that are whipped by the wind. These clouds actually point in the direction that the wind is blowing, which is why they look so wispy. Cirrus clouds can sometimes appear in the sky when it is sunny, but they indicate that a weather change is soon to come. These clouds are very high up in the sky and are made out of ice crystals.

The presence of certain clouds indicates that precipitation is coming. When a cumulus, stratus, or cirrus cloud is going to bring precipitation, the word **nimbus** is added to the cloud's name. For example, if cumulus clouds grow tall enough, they form cumulonimbus clouds. **Cumulonimbus** clouds are fluffy like cumulus clouds, but have greyer coloring than their smaller counterparts. Cumulonimbus clouds are much bigger at the top than at the bottom, similar to the way the metal head of a hammer is bigger than the handle of the hammer. These clouds indicate that severe weather may be coming your way. Lightning, thunder, wind, heavy rain, and even tornados could possibly come soon after these clouds form! **Nimbostratus** clouds are a darker grey than normal stratus clouds. If you see a nimbostratus cloud, it likely means that a long, steady rain is soon to come.

Clouds are also classified by how high they appear in the sky. Low-level clouds form anywhere between the ground level of earth and 6,500 feet in the air. Cumulus, stratus (fog and
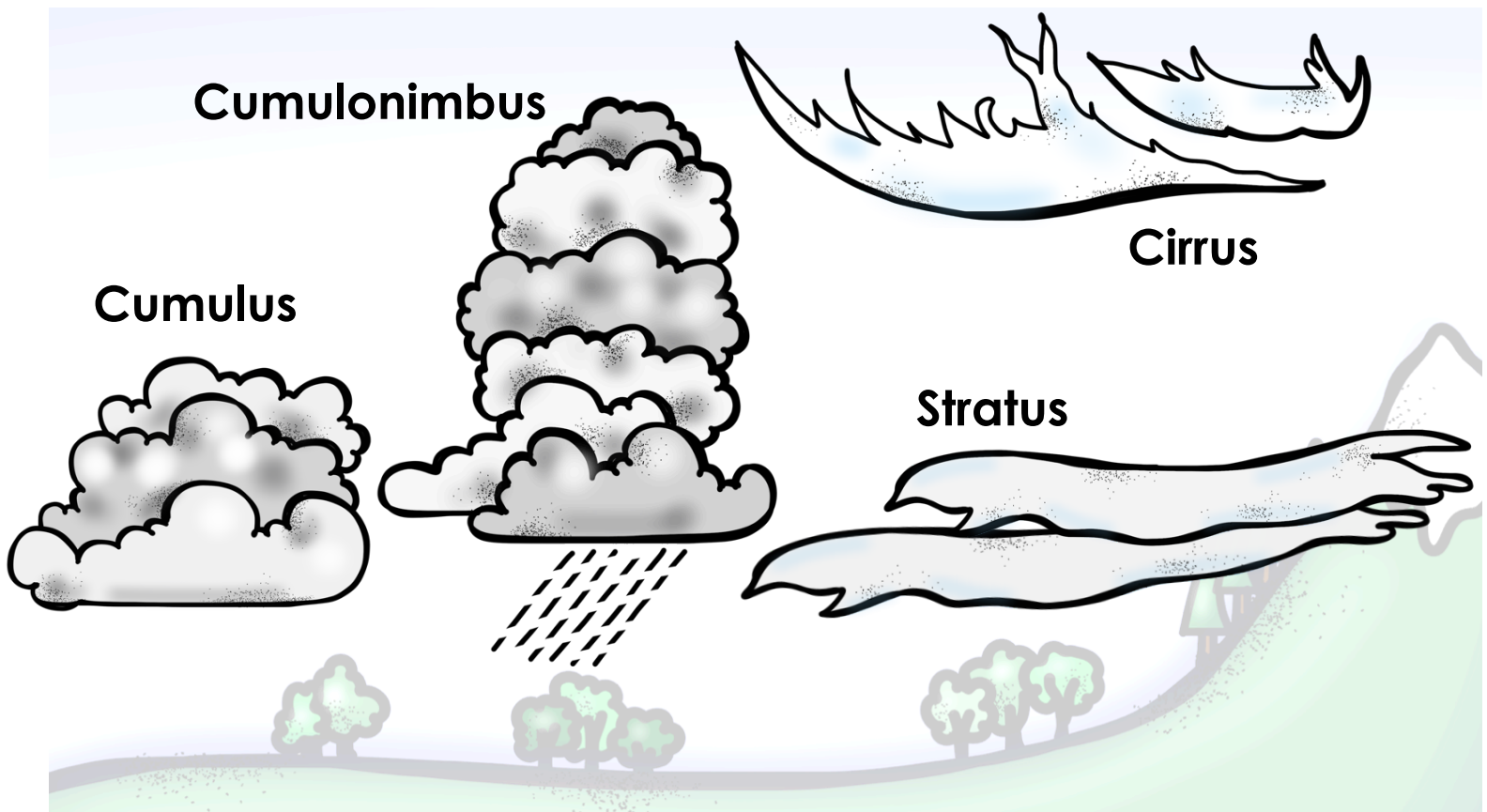
Clouds

mist), and nimbostratus clouds are all considered low-level clouds. Mid-level clouds form anywhere between 6,500 feet and 20,000 feet in the air. Cumulonimbus, altostratus, and altocumulus clouds are all considered mid-level clouds. High-level clouds form over 20,000 feet above the ground. Cirrus and cirrostratus clouds are high-level clouds.

Is that a horse's tail in the sky? A cotton ball? Or a big blanket? Regardless of what a cloud looks like, observing clouds can be useful for more than just a fun guessing game. Clouds are observed to determine what type of cloud it is and what type of weather might be soon to follow. Meteorologists classify clouds based on observations about how they look in order to help predict the weather. The next time you think you see a face or a dinosaur in the clouds, see if you can also figure out what type of cloud it is!

FAST FACT: There are way more than just three types of clouds. Scientists name the other types of clouds by combining the terms cirrus, stratus, cumulus, and nimbus. Some examples of these combinations include cirrostratus, cirrocumulus, altocumulus, altostratus, stratocumulus, nimbostratus, and cumulonimbus.

FAST FACT: Cloud names have meanings! Cumulo means heap. Remember that cumulus clouds look like heaps of cotton balls. Strato means layer. Remember that stratus clouds look like thin blankets. Cirro means wisp. Remember that cirrus clouds look like wispy brush strokes or horse tails. Nimbo means rain. Remember that clouds with the word "nimbus" in the name can bring precipitation. Alto means high. Clouds with "alto" in their name are mid or high-level clouds.

Cumulonimbus

Cirrus

Cumulus

Stratus

TEXT-BASED EVIDENCE QUESTIONS

Clouds

Directions: Answer these questions after you read the passage. Remember to begin your answer by restating part of the question, use direct evidence from the text, and explain your thinking.

KEY IDEAS & DETAILS

1. According to the first paragraph of the text, what categories do scientists place clouds into? **RI.1**

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2. Describe cumulus clouds. **RI.3**

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3. Describe stratus clouds. **RI.3**

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4. Describe cirrus clouds. **RI.3**

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5. Summarize the water cycle. **RI.2**

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TEXT-BASED EVIDENCE QUESTIONS

Clouds

Directions: Answer these questions after you read the passage. Remember to begin your answer by restating part of the question, use direct evidence from the text, and explain your thinking.

CRAFT & STRUCTURE

6. Explain the meaning of the term "nimbus." **RI.4**

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7. How is the passage organized? (Chronological, cause/effect, comparison/contrast, description, problem/solution). Use evidence from the text to explain your answer. **RI.5**

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INTEGRATION OF KNOWLEDGE & IDEAS

8. What is the key idea that the author wants readers to understand from this text? Use evidence from the text to support your reasoning. **RI.8**

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