## WACKY WEATHER SCIENCE LESSON: SNOW

Lesson

Snow forms in the clouds when water vapor freezes into ice crystals – what we call snowflakes. While many clouds can produce snow, dark nimbostratus clouds are usually the best snow makers. These clouds are full of water, which makes them look very dark. If it is warm outside, rain will fall from them, but if it is cold enough, snow will fall. These clouds block out sunlight and make the sky look solid gray.

Snowflakes come in a large variety of shapes, but all snowflakes have six sides. On some snowflake shapes it is very easy to see all six sides, but on other shapes it is a bit harder to see them. Here are some of the most basic shapes:

*Stellar dendrite snowflakes* are the type of snowflake that usually comes to mind when you think about snowflakes. Stellar means star-like and dendrite means tree-like. So these snowflakes look like stars but the points of the star have little "branches" on them.

*Hexagonal plate snowflakes* are thin and made of solid ice. They look like dinner plates with six sides.

**Column snowflakes** get their names because they are long and thin like the columns found on some buildings. If you look at a column snowflake closely, you can see that it has six sides.

*Needle snowflakes* are very thin and long and look like needles. These snowflakes are so small that it is hard to see all six sides.

If it is snowing outside, go out and try to identify the shapes of the snowflakes. Try catching the snowflakes on a sheet of black construction paper so that they are easier to see. Just leave the paper outside for a few minutes first to let it cool down so that the snowflakes don't melt as quickly!

Snowflakes can take on lots of different shapes, including combining some of the basic snowflake shapes. As you are looking at the snowflakes, notice the patterns made in them. You should notice that they make identical (or very close to identical) patterns on all of the points of the star.

If you could fold a snowflake in half, you would see that both sides of the snowflake would match up.

This is called symmetry. If you find a snowflake without six sides, it was probably damaged by strong winds or bumping into other snowflakes while it was falling. These snowflakes are sometimes called irregular snowflakes, because it is hard to tell what type of shape they were originally.



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## WACKY WEATHER SCIENCE LESSON: HAIL

Lesson

Hail forms when very strong winds push drops of water high up in the air where it is very cold. This causes the water to freeze into balls of ice called hail.

When the hail gets too heavy for the wind to keep it up in the air, it falls to the ground. Because hail needs very strong winds to form, it usually comes with tornadoes and thunderstorms that happen in the warm spring and summer months.

Imagine having little balls of ice on the ground while it is warm outside!

The individual pieces of hail are called *hailstones*.

The size of a hailstone is often described using names of common objects that are close to the size of the hailstones.

For example, pea-sized hail is the size of peas and golf-ball-sized hail is about the size of golf balls. Hail is usually small, but it is not impossible for grapefruit or softball sized hail to fall when the weather conditions are just right!

To learn more about hail sizes, do the Naming Hailstones science project.

Huge *cumulonimbus clouds*, also known as thunderheads, produce hail.

If you see these clouds in the sky, there is a good chance that a hailstorm may be coming your way.

Hailstorms do not last very long – only about 5-10 minutes – but that is long enough to damage buildings, cars, and farmers' crops. Some places get hailstorms that can leave over a foot of hail on the ground!

If it ever starts hailing where you live, get inside quickly and stay away from windows that may get broken by the falling hail.

