THE ELUSIVE COMET

A FAMILY SCIENCE @ HOME ACTIVITY

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FAMILY LESSON **THE ELUSIVE COMET**

Parent Resources for The Elusive Comet

Goals of this lesson:

- Compare the orbit of a comet to the orbit of a planet.
- Investigate and identify the parts of a comet.
- Create a simple model of a comet using household items.
- Locate celestial bodies in the night sky.

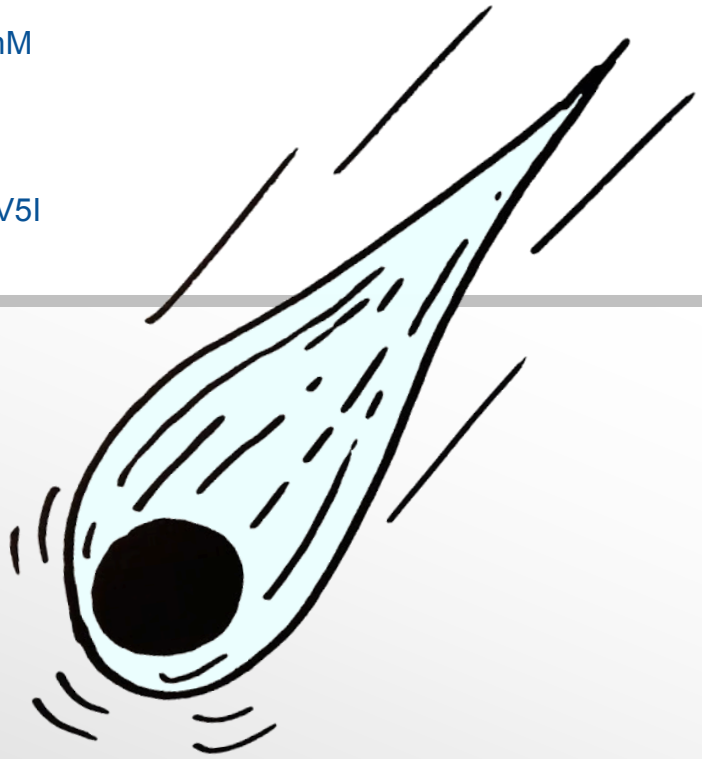
For additional information, copy and paste these links into your browser:

The projected path of Comet Atlas:
https://www.youtube.com/watch?v=g6bWCwh7dao

Using a backyard telescope to see Comet Atlas:
https://www.youtube.com/watch?v=ZiaXgV3aznM

Comet Atlas breaks up:
https://www.youtube.com/watch?v=EwXN7AdzV5I

How to Draw a Comet



https://www.youtube.com/watch?v=NyQ-17AGVJ0

FAMILY LESSON **THE ELUSIVE COMET**

What is a Comet?

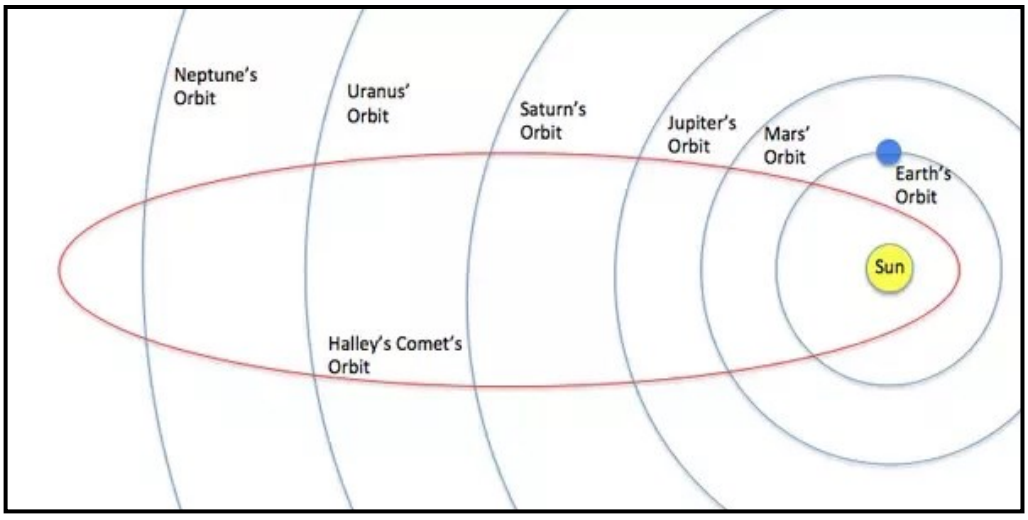
A comet is a small chunk of dust and ice that orbits, or travels around, the Sun. It is sometimes compared to a “dirty snowball.” There are billions of comets in the solar system, but most never pass close by Earth. Those that do can be a spectacular sight for several months in the night sky.

HALLEY’S COMET - 1986

Most planets orbit the sun in a path shaped like a circle. On the other hand, a comet’s orbit is shaped like a long oval. Most comets travel very far into the outer solar system as they orbit. Depending on the comet, it can take from several years to many thousands of years to complete one orbit.

The center of a comet is called the nucleus, which is usually about 6 miles wide. But the size of a comet’s nucleus gets a little smaller every time it approaches the Sun. As a comet heats up from the Sun’s rays, ices in its nucleus vaporize and form a cloud called a coma that can expand out to 50,000 miles around the nucleus. A tail also forms on a comet as it approaches the Sun. Comet tails can be over 600,000 miles long and the tail always faces away from the Sun.

The best-known comet is named Halley’s Comet. It can be seen from Earth about every 76 years. The last time we saw Comet Halley in our night sky was in the year 1986.



Halley’s Comet Math

Halley’s Comet was studied by Edmond Halley, an astronomer. He read historical reports of a comet approaching Earth in 1531, 1607 and 1682. He concluded that these three comets were actually the same comet returning over and over again. He correctly predicted that the comet would return 76 years later.

Halley’s Comet orbits the Sun every 75 to 77 years. Using the data below, calculate the years that Halley’s Comet was seen from Earth, and when we will see it again.

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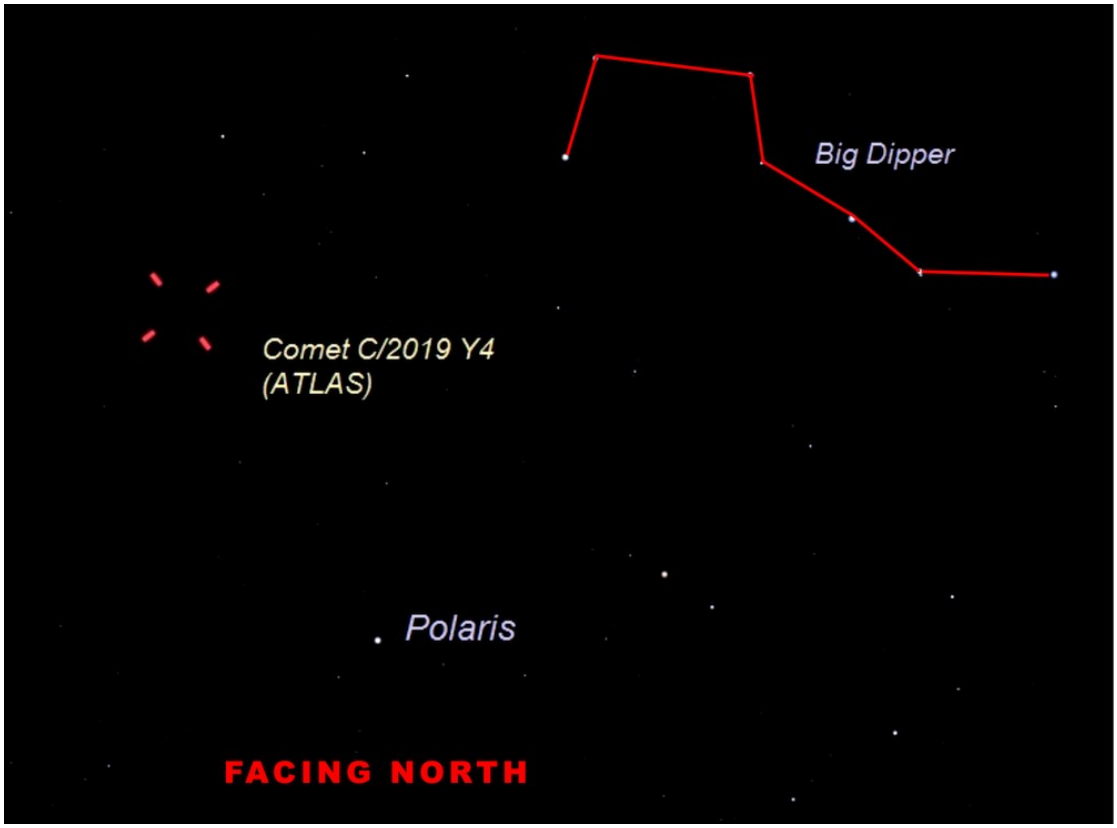
FAMILY LESSON **THE ELUSIVE COMET**

What happened to Comet Atlas?

Astronomers in Hawaii discovered a comet on December 28, 2019. It was named Comet Atlas. At the time of its discovery, the comet was a very faint, fuzzy blob approaching the Sun, with a small tail. Its orbit seemed to mirror that of the legendary Great Comet of 1844.



Sky-watchers had high hopes that Comet Atlas would light up the night sky this Spring, with forecasts suggesting it could become bright enough to see with the unaided eye. It was calculated that Comet Atlas would be at its brightest during the month of May, 2020 as it made it's closest approach to the Sun.

High in the northern Springtime sky, Comet Atlas was on a path to travel between the Big Dipper and the North Star, Polaris.

However, around March 22, the comet started breaking apart. Heat from the Sun was just too much for Comet Atlas, melting the ice and vaporizing the rocks and dust that made up the comet's nucleus. This meant that we would not be able to see Comet Atlas with the naked eye. But, parts of Comet Atlas can still be seen through powerful telescopes. Since Atlas broke apart when it was quite close to Earth, and quite bright, astronomers have still been able to gather a great amount of data from what remains of the comet.

COMET ATLAS BEFORE THE BREAKUP

On a clear night, take a look towards the northern sky. Locate the 7 bright stars that make up the Big Dipper, then find the North Star, Polaris. Imagine, just to the left, the elusive Comet Atlas.

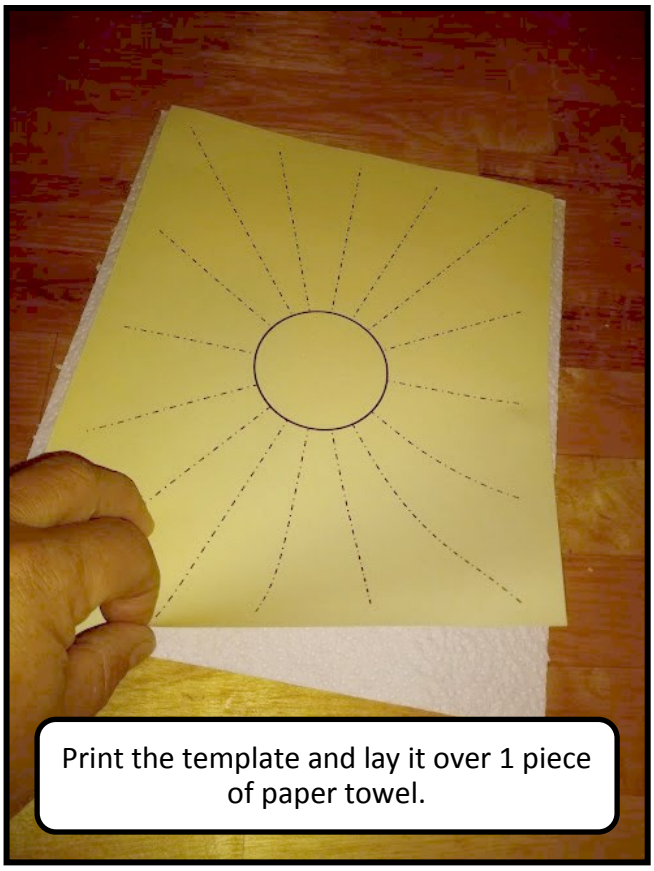
Comet Atlas was named after The Atlas Project, which is actually a scientific search for asteroids. Halley's Comet, Comet Hale-Bopp, along with Comet Bennett and Comet McNaught were named after the astronomers who studied them.

On the pages that follow, use the template and follow the directions to make your own comet. You can name your comet after yourself!

FAMILY LESSON **THE ELUSIVE COMET**

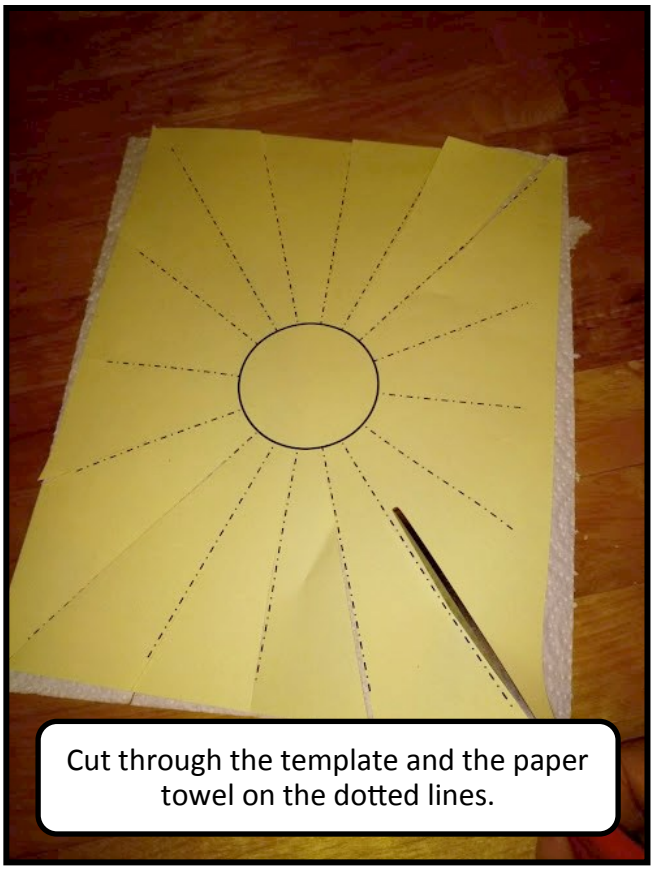
Make a Model of a Comet

1.



Print the template and lay it over 1 piece of paper towel.

2.



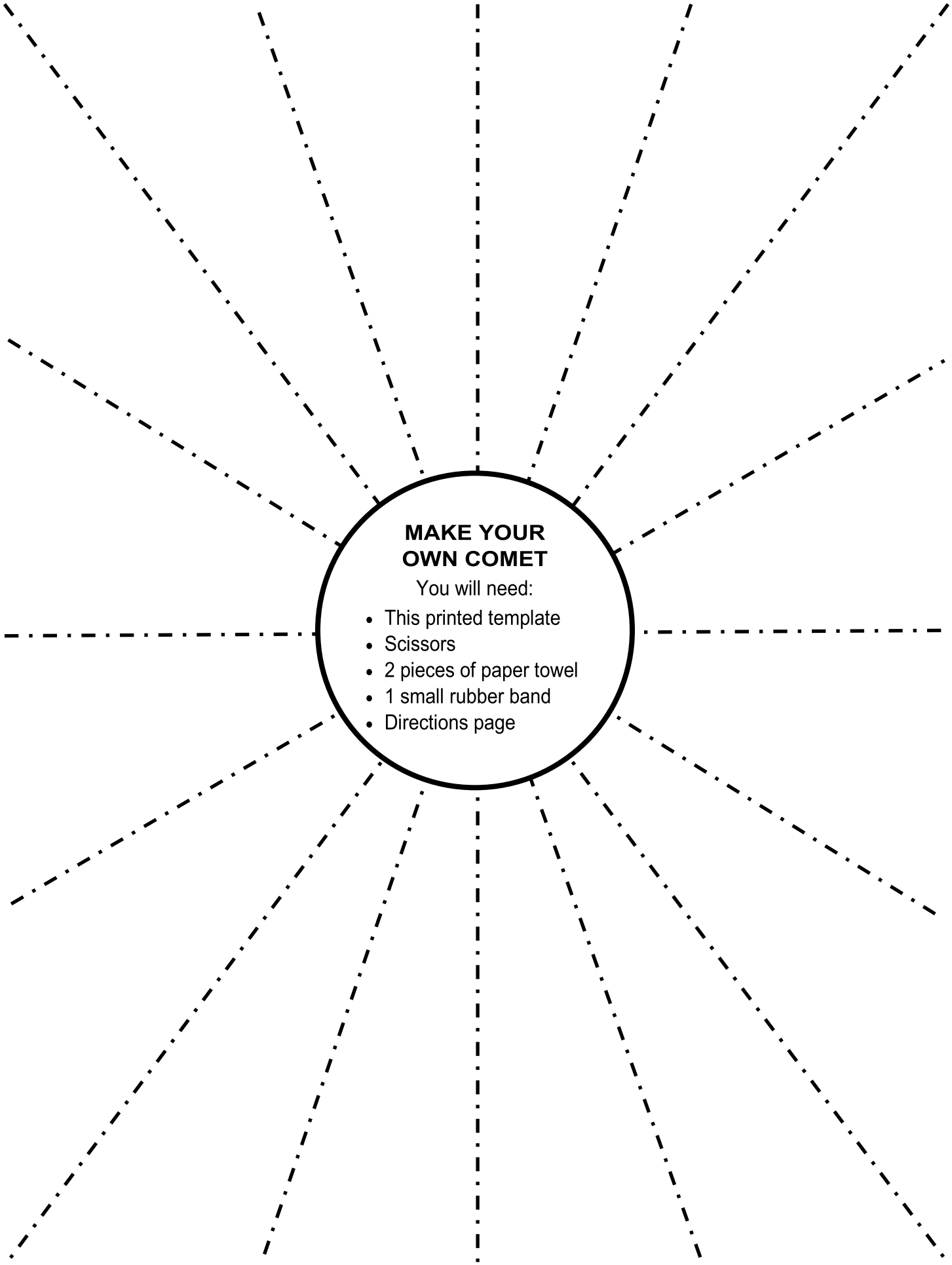
Cut through the template and the paper towel on the dotted lines.

3.

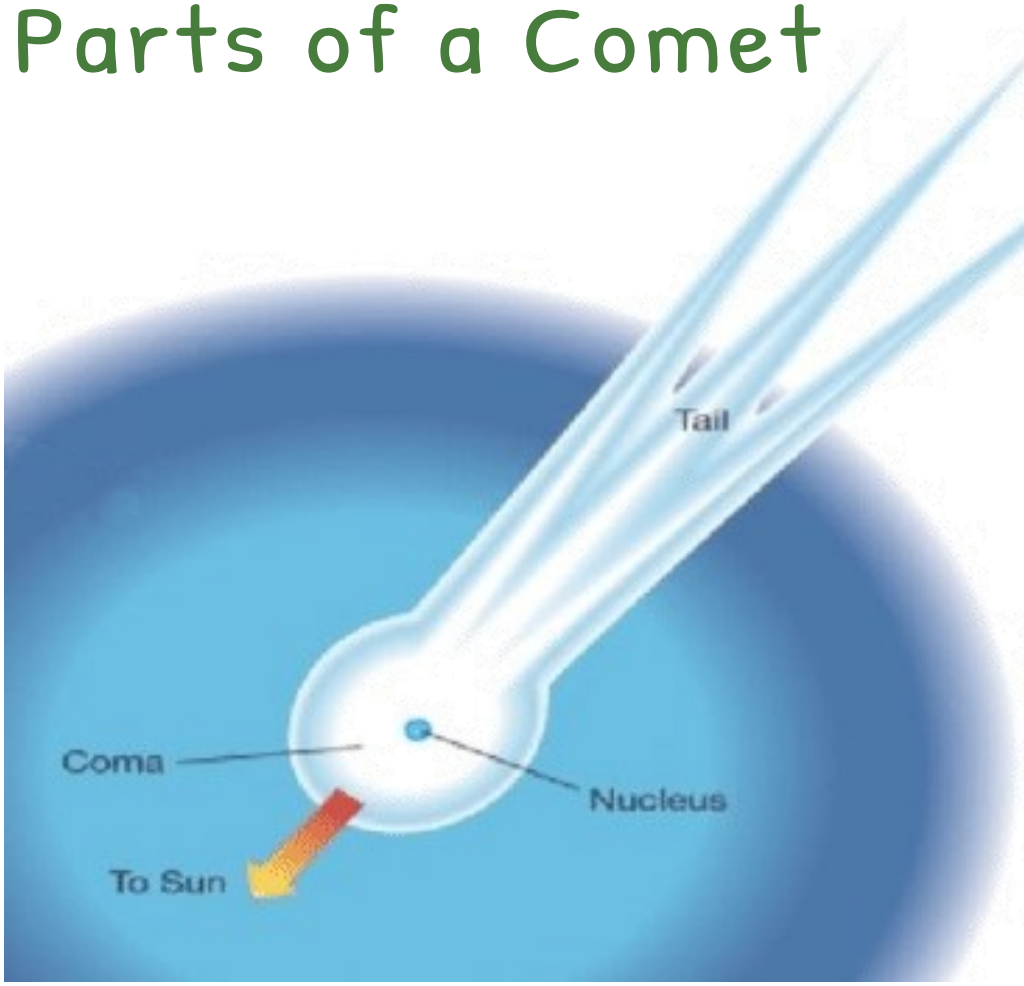
Ball the other paper towel to the size of a ping-pong ball, and place in the center.

4.

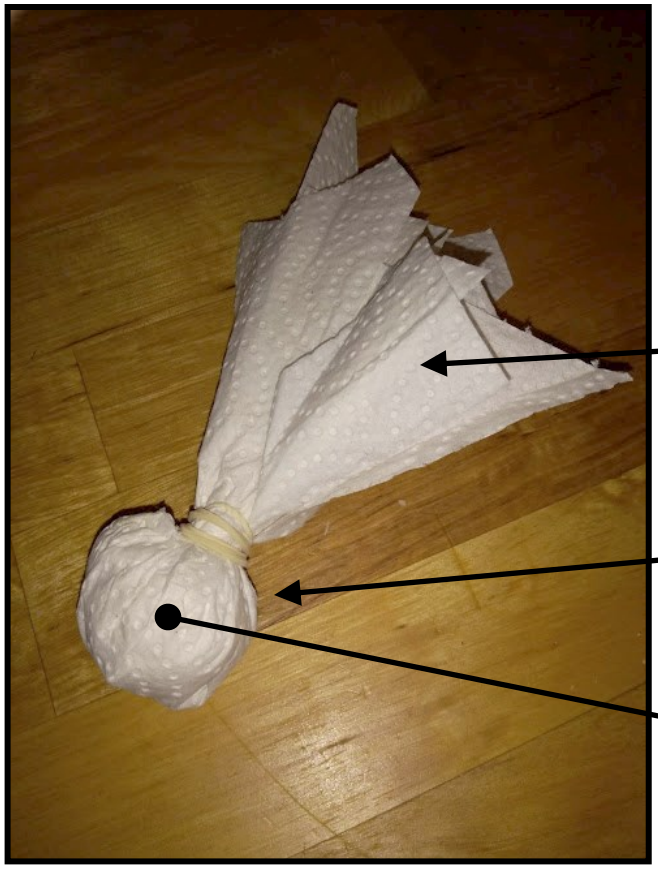
Wrap the cut paper towel around the ball and wrap with a rubber band.


MAKE YOUR
OWN COMET
You will need:
This printed template
Scissors
2 pieces of paper towel
1 small rubber band
Directions page

Parts of a Comet



Comets have three main parts: a nucleus, a coma, and a tail. The solid core is called the nucleus, which develops a coma with one or more tails as the comet gets closer to the Sun. The coma is a dusty, fuzzy cloud around the nucleus. The tail extends from the comet and always points in a direction away from the Sun.



Use the diagram above to label the parts of your comet.