GRAPE OR RAISIN?

Goal:

Use grapes and raisins to model and compare Vesta and Ceres.

Estimated time:

15-20 minutes

Who to do it with:

Ages: 4-Adult

Numbers: 1 or more!

What you need:

Per participant

- 1 Golden Raisin to represent Vesta (about 1 cm {~ 1/2 inch} diameter)
- 1 red or purple grape to represent Ceres (about 2 cm {~1 inch} diameter)

Optional: Melon to represent Earth (about 25 cm {~10 inches} diameter)

How to do it:

1. Hand out one grape and one raisin to each participant.
2. Ask participants to compare the grape and the raisin in general.
3. Provide some time for participants talk with others in making their comparisons.
4. If needed, prompt the participants to compare the grape and raisin's:
   a. Size
   b. Shape
   c. Color
   d. Amount of water
5. Ask participants to share their comparisons.
6. Explain that we are using the grape to model Ceres and the raisin to model Vesta.
7. During the share out time, follow the participant comparisons with the following questions/information:

Size:	If the Earth was the size of a melon, then Ceres would be the size of the grape and Vesta would be the size of the raisin. In reality, Ceres is similar in diameter to the state of Texas and Vesta is similar in diameter to the state of Arizona.

Shape:	Compare the shape of the grape and the raisin. How does this compare with the shape of Vesta and Ceres? (Like the grape, Ceres is more spherical than Vesta which is more of an irregular shape having a large crater in the South Polar Region).
Color:	Compare the color of the two pieces of fruit. The golden raisin is lighter than the red or purple grape. Similarly, Vesta is brighter than Ceres when viewed in the night sky.
Amount of Water:	Eat the grape and then eat the raisin. How did the amount of juice compare? (The grape was juicer than the raisin.) Scientists think that Vesta is drier and volcanic, much more like the Earth's moon than is Ceres. Scientists think Ceres has water ice under the surface and may be more like the icy moons of Jupiter. The Dawn spacecraft will look for evidence of water ice on both worlds.

8. End by saying that the Dawn spacecraft explored Vesta from July 2011 to September 2012 and will explore Ceres beginning in 2015. We learned a lot about Vesta and look forward to doing the same at Ceres!

Why do it:

Vesta and Ceres are the two targets of the Dawn mission. Fruit is a tasty way to involve participants of all ages with a comparison activity that relates to some of the differences of the actual targets of the Dawn mission.

The distinct characteristics of Vesta and Ceres demonstrate that each has followed a different evolutionary path. Vesta appears to be dry, has changed over time, and is differentiated, with surface features ranging from basaltic lava flows to a deep crater in its southern hemisphere. Ceres, in contrast, has a primitive surface, shows evidence of water ice with hydrated minerals on its surface, and perhaps even has frosty polar caps.

By studying these contrasts and comparing these bodies, scientists hope to develop an understanding of the transition from the rocky inner to the icy outer regions of the Solar System. Vesta and Ceres are unlike any asteroids that have been visited by spacecraft.