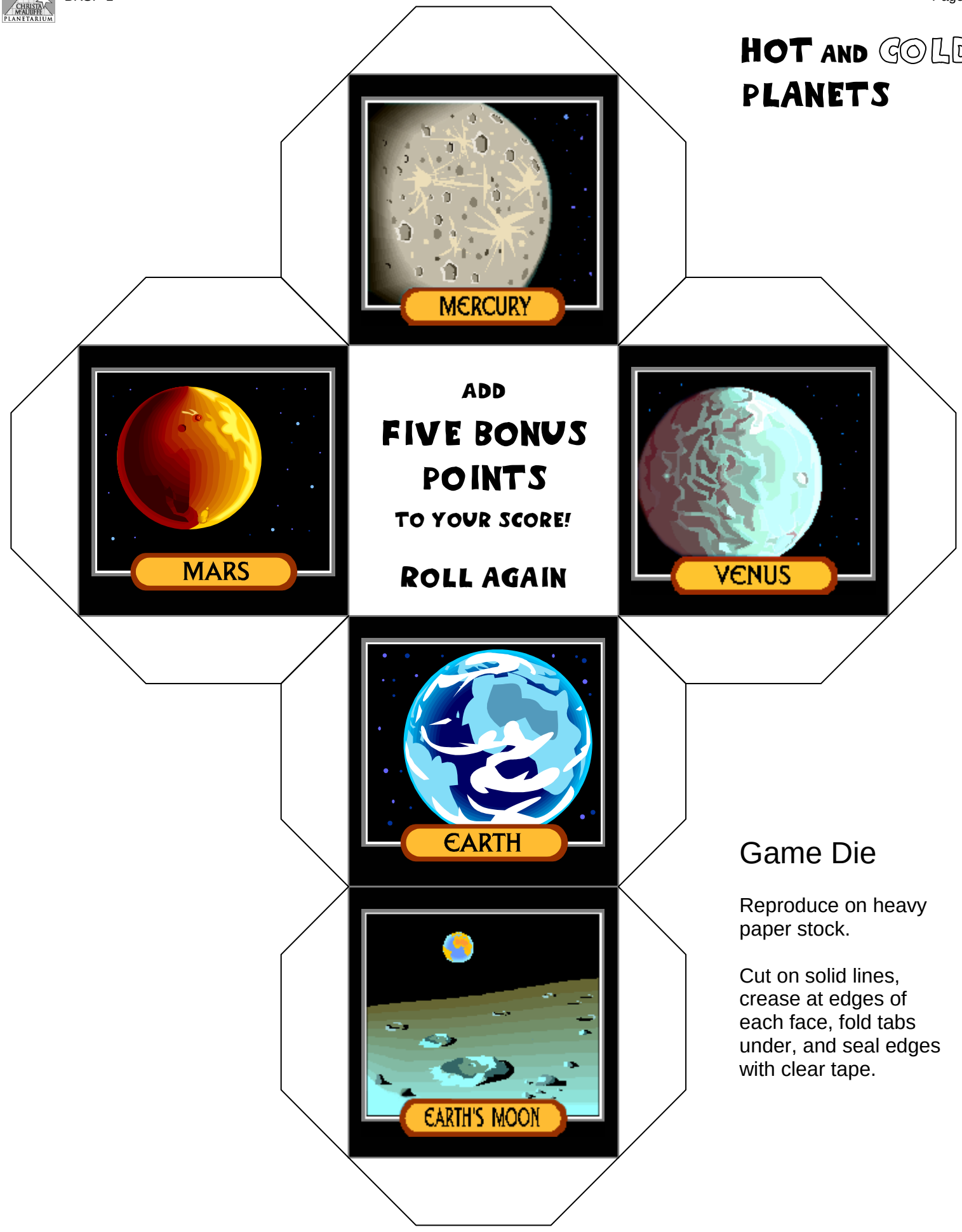
HOT AND COLD PLANETS



Game Die

Reproduce on heavy paper stock.

Cut on solid lines, crease at edges of each face, fold tabs under, and seal edges with clear tape.

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Teachers' Notes

Objectives: Students will use a game format to learn that the temperature of a planet is largely determined by its distance from the sun, but that other factors are at work as well – in particular, the presence or lack of an atmosphere. Students will also practice/reinforce the names and positions of the planets in our solar system.

Grade Level: Primary/Elementary

NSES: D2, D6

NHSCF: 4a, 4b

Key Concepts

Mercury and Venus are much hotter than Earth because of their proximity to the sun. Mars, being farther from the sun than Earth, is colder.

Venus, Earth, and Mars have atmospheres, which warm the planets by what is called the *greenhouse effect*. An atmosphere acts like a thermal blanket, trapping heat energy and evening out differences between daytime and nighttime temperatures.

Although farther from the sun than Mercury, Venus is hotter because of its atmosphere. In fact, Venus is hot all over, at all times, because of its very dense atmosphere. Interesting fact: The surface of Venus is hot enough to melt tin, lead, and zinc.

Mercury and Earth's moon have essentially no atmospheres and consequently experience enormous swings in temperature from day to night.

Approximate Surface Temperatures

Planet	Minimum	Maximum	Mean
Mercury	-279°F (-173°C)	801°F (427°C)	332°F (167°C)
Venus	--	--	864°F (462°C)
Earth	-126°F (-88°C)	136°F (58°C)	57°F (14°C)
Moon	-387°F (-233°C)	253°F (123°C)	--
Mars	-125°F (-87°C)	23°F (-5°C)	-81°F (-63°C)
Data Sources: http://solarsystem.nasa.gov/planets http://www.windows.ucar.edu/tour/link=/tour/link=/windows3.html			