

INTERMEDIATE SCIENCE 9
UNIT 1: SPACE
WORKSHEET # 8: SPACE ROCKS



1) Comets:

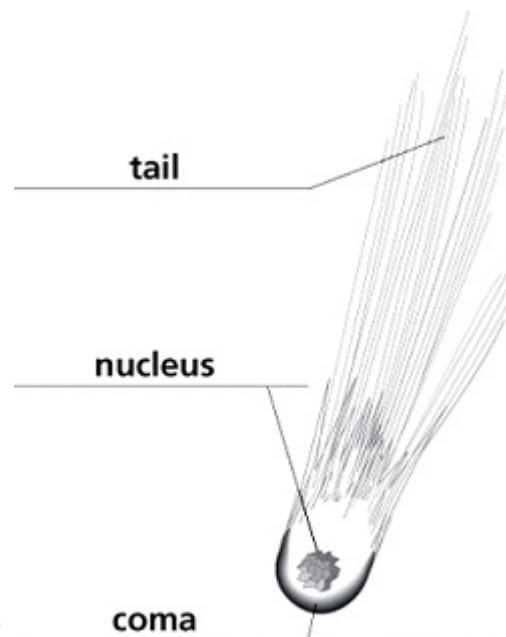
- Dirty snowballs” composed of ice, rock and gas that originate from the Kuiper belt and Oort Cloud
- Travel in long elliptical orbits around the sun that change due to the gravitational pull of planets
- Famous comets:
 - Halley’s Comet is visible approximately every 76 years
 - Shoemaker-Levy 9 was torn apart by Jupiter in 1992

Parts of a Comet:

Tail is composed of gas and dust emitted from the nucleus

Nucleus is the solid, central part of a comet. it is a combination of ice, dust and rock

Coma is a large, dusty atmosphere surrounding the nucleus, made up of sublimated gas mixed with dust.



2) Asteroids

- Asteroids are rocky-metallic objects which range in size from about the size of pebbles to around 1,000 km across.
- An irregularly shaped rocky object in space (like a space potato)
- May be the shattered remains of objects left over from the time when the planets were formed
- Most asteroids in our solar system are in the Asteroid Belt located between Mars and Jupiter

3) Meteoroid, Meteors and Meteorites

Meteoroids are pieces of rock (i.e. chunks of asteroids or planets) floating through space

Meteors are “shooting stars” or meteoroids that are burning up through the earth’s atmosphere

Meteorites are meteors that actually reach the earth’s surface (must have been large meteors to survive)

Impact sites is the place where a relatively small object (meteorite) has collided with a larger object (planet) to produce a fairly circular depression on the surface of the larger object. The impact site is often referred to as an impact crater due to the circular depression that was formed.

Near-Earth Objects (NEOs) are comets and asteroids that have been nudged by the gravitational attraction of nearby planets into orbits that allow them to enter the Earth's neighborhood

PART B: Use the notes from class and the information from Bill Nye - Comets and Meteors Video to answer the following questions. *Shade the letter of the correct answer on the computer scorable answer sheet provided*

1. Which of the following best describes the material which makes up the nucleus of a comet?
 - (A) Rock
 - (B) Gaseous
 - (C) Dirty ice
 - (D) Metallic crystals

2. What are comets mostly made of?
 - (A) Hydrogen
 - (B) Ice
 - (C) Iron
 - (D) Rock

3. What is the glowing head of a comet called?
 - (A) Coma
 - (B) Crater
 - (C) Head
 - (D) Maria

4. What is the Oort cloud?
 - (A) A cluster of asteroids
 - (B) A swarm of comets far from the sun
 - (C) The cloud that a meteoroid produces in the atmosphere
 - (D) The same as the coma of a comet

5. Most of the asteroids are located between the orbits of
 - (A) Venus and Earth
 - (B) Earth and Mars
 - (C) Mars and Jupiter
 - (D) Jupiter and Saturn

6. What is the main difference between meteoroids and asteroids?
 - (A) Meteoroids are generally bigger than asteroids
 - (B) Asteroids are only found in the "belt" between Mars and Jupiter
 - (C) Asteroids are generally bigger than meteoroids
 - (D) Asteroids are pieces of comets, whereas meteoroids are pieces of space debris

7. The particles which produce meteor showers come from
 - (A) Impacts of meteoroids with the moon
 - (B) Dead comets
 - (C) Collisions of asteroids with each other
 - (D) Interstellar space

8. What is a meteorite?
 - (A) A streak of light caused by a star moving across the sky
 - (B) A streak of light caused by a small particle from space burning up in Earth's atmosphere
 - (C) A fragment of an asteroid from the solar system that has fallen to Earth's surface
 - (D) A small moon that orbits one of the giant planets

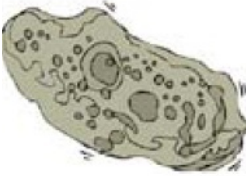


9. What do we call a small piece of solar system debris found on Earth?
- (A) Asteroid
 - (B) Meteoroid
 - (C) Meteor
 - (D) Meteorite
10. What is actually a "shooting star"?
- (A) Stars revolving around the sun
 - (B) Asteroids passing close to Earth
 - (C) Meteoroids burning up in Earth's atmosphere
 - (D) Comets streaking by Earth
11. Which of the following space objects is the smallest?
- (A) Asteroid
 - (B) Planet
 - (C) Comet
 - (D) Meteoroid
12. When you see a streak of light in the sky, it is a chunk of rock burning up in the atmosphere. It is called a(n)...
- (A) Asteroid
 - (B) Meteor
 - (C) Meteoroid
 - (D) Meteorite
13. Comets and meteors are made from different stuff than the planets.
- (A) True
 - (B) False
14. How long can a comet take to orbit the Sun once?
- (A) 100 years
 - (B) 1,000 years
 - (C) 10,000 years
 - (D) All of the above
15. A string of comets collided with which planet?
- (A) Earth
 - (B) Jupiter
 - (C) Mars
 - (D) Mercury
16. These are chunks of rocks and metal that orbit the Sun.
- (A) Asteroid
 - (B) Meteor
 - (C) Meteoroid
 - (D) Meteorite
17. When a rock falls from the sky and hits the Earth, it is a...
- (A) Asteroid
 - (B) Meteor
 - (C) Meteoroid
 - (D) Meteorite

18. We have found meteorites that come from Mars.
- (A) True
(B) False
19. Every planet and moon in the Solar System has been hit by meteorites.
- (A) True
(B) False
20. When a rock is in the atmosphere, what is it called?
- (A) Asteroid
(B) Meteor
(C) Meteoroid
(D) Meteorite
21. Comet Hale-Bopp was discovered by an astronomer name Hale and another named Bopp.
- (A) True
(B) False
22. What makes comets different from asteroids and meteoroids?
- (A) Rock
(B) Volume
(C) Size
(D) Ice

Match the term with its definition

___ 23.	Asteroid	A. This is a small rock that enters the atmosphere and leaves a bright streak in the sky.
___ 24.	Meteoroid	B. Another name for a small asteroid.
___ 25.	Meteor	C. A piece of rock that hits the Earth's surface.
___ 26.	Meteorite	D. A big chunk of rock in space that never became a planet.

27. Place an “X” in the appropriate boxes to indicate characteristics of asteroids, comets, and meteors.

	Asteroid	Comet	Meteor
			
appears as a streak in the sky			
frozen ball of dust			
made up of rock			
orbits the Sun			
orbits between Jupiter and Mars			
often called “Shooting Stars”			
usually burns up the Earth’s atmosphere			