Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_ Block:\_\_\_\_\_\_\_ Due Date:\_\_\_\_\_\_\_\_\_

**Asteroid/Comet/Meteor Reading Homework**

*Instructions: Read pages 333- 358 and answer the following questions.*

***Page 333***

1. What are 4 examples of minor bodies in our solar system?
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What do these bodies “hold a record of”?

***Page 334-Asteroids***

1. What is an Asteroid?
2. What were 2 other names astronomers refer to them as?
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and b.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the cutoff for a size of an asteroid? \_\_\_\_\_\_\_\_\_\_\_km
4. The total number of know asteroids exceeds \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and are found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ of our solar system.
5. What are the two possible ways the asteroid belt could have formed?
   1. Option 1:
   2. Option 2:

***Page 335- Physical Properties***

1. What are the 3 types of asteroids? And a brief description of their properties.
   1. \_\_\_\_-type:
   2. \_\_\_\_-type:
   3. \_\_\_\_- type:
2. What is unique about Vesta?

***Page 337-340 – Earth Crossing Asteroids***

1. Most asteroids have eccentricities lying in the range from \_\_\_\_\_ to \_\_\_\_\_\_, and always remain between the orbits of \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. What is and Earth-Crossing Asteroid?
3. What is an Apollo asteroid (discuss orbit)?
4. What is an Aten asteroid (discuss orbit)?
5. What is an Amor asteroid (discuss orbit)?
6. Between 2000 and 2010, more than \_\_\_\_\_\_\_\_ asteroids passed with 0.05 AU of our planet.
7. ***True or False***: Most Earth-Crossing Asteroids (E.C.A.) will eventually collide with Earth.
8. Most E.C.A are relatively small, about 1 km in diameter. What would happen if one hit?
   1. Devastated area: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Explosive power:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_x more than all nuclear weapons on Earth.
9. With enough time, scientists are confident in doing “what” to the asteroid to avoid a collision?

***Orbital Resonances – Page 340***

1. What is a Trojan asteroid?
2. ***True or False:*** Trojan asteroids will eventually impact Jupiter.
3. Out of the 5 Lagrangian points, which 2 are stable? \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_

***Comets – Page 340-343***

1. What is a comet?
2. Sketch a comet (label: Nucleus, Coma, Dust Tail, Ion Tail, Hydrogen Envelope)
3. What two features (from above) are only visible from Earth on a comet?
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Why does the ion tail always point away from the sun?
5. Why is the dust tail curved on a comet?
6. Sketch a comet orbiting the sun, make 5 comets on the path showing how it’s tails change as they go around the sun. Have two comets before it closest approach, 1 at closest approach to sun, and 2 after it’s closest approach. (see fig 14.10).
7. When is Halley’s Comet next visit? \_\_\_\_\_\_\_\_\_\_\_\_

***Comet Orbits –page 346***

1. What is a long-period comet? (discuss years)
2. What is a short-period comet? (discuss years)
3. What is the Kuiper Belt?
4. What is the Oort Cloud?

***Beyond Neptune – page 248***

1. What are Kuiper Belt Objects?
2. What is a trans-Neptunian object?

***Pluto’s Orbital and Physical Properties & Prop of Trans. N. Objects page 348-352***

1. What are the 3 qualifications to be a planet?
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. After reading about Pluto and Trans-Neptunian Objects, do you thing Pluto should or should NOT be a planet? Give multiple reason why or why not as discussed in the book. This is YOUR option based on facts. BTW good way to see if you copied or actually read!!!
3. How many dwarf planets are in our solar system currently? \_\_\_\_\_\_\_\_\_

***Meteoroids –page 353-354***

1. What is a meteor?
2. What is a meteoroid? (discuss size in meters)
3. What is a meteorite?
4. What is a meteoroid swarm?
5. What are micrometeoroids?
6. How is a meteor shower named? From their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (test question)
7. What speed do “fireballs” have and what is else do they produce?
   1. Speed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and Produce:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Fastest speed: \_\_\_\_\_\_\_\_\_\_
8. How many craters are still visible on Earth? \_\_\_\_\_\_\_\_\_\_\_\_

***Meteorite Properties – page 356***

1. What is a carbonaceous meteorite?
2. How old are meteorites?
3. Meteorites provide clues about what?