

Activity #4: Solar System Collisions

Please go to the web site: <http://janus.astro.umd.edu/astro/impact/>

Collisions occur throughout the Solar System. Investigate collisions of projectiles on Jupiter and Pluto. Complete Table 4. Then answer the questions.

TABLE 4

1 km diameter body hits Jupiter, velocity =

Composition	Result: what happens? Where?	Energy released	Frequency once every...
Rock			
Ice			
Iron			

Now investigate a collision between various bodies with Pluto.

1 km diameter body hits Pluto, velocity =

Composition	Result: what happens? Where?	Energy released	Crater diameter	Crater depth	Frequency once every...
Rock					
Ice					
Iron					

For Comparison: 1 km diameter body hits Earth (land only), velocity=20 km/sec

Rock					
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4-1. Why does the velocity change in these collisions?

4-2. Why are no crater diameters given for the collisions with Jupiter?

4-3. Write the kinetic energy formula. (Do a Search if you forgot it.)

Compare the energy released by a 1 km rocky projectile that hits Jupiter to a 1 km rocky projectile that hits Earth.

How do you account for any differences?

4-4. Compare the energy released by a 1 km rocky projectile that hits Pluto to the 1 km rocky projectile that hits Earth.

How do you account for the differences?

4-5. How do the crater diameters and depths for the collision between Pluto and a 1 km rocky projectile compare to a similar collision on Earth?

Account for any differences.