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**Activity 1.2 -***What happens to energy when objects collide?*

**Part 5** –Tennis ball & Basketball Demonstration

**Background Information**

1. What do we know about kinetic energy already?
2. How do energy transfers take place?

**Demonstration:**

1. Basketball drop observations:
2. Tennis ball drop observations:
3. Predict what will happen if dropped together:
4. Observations of dropped together:

After watching the demonstration, use all the information we’ve collected during activities 1.1 & 1.2 to answer the following questions. This assignment should be done on your own, with your own materials.

1. A tennis ball and basketball are bounced together. Why does the tennis ball bounce so high and the basketball bounce so low? (Just answer the question, no explanation needed)

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2. What do you *observe* to support your answer? What *other information* do you have from **Activity 1.2** to support your answer to question 1?

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3. What do we know about energy transfers and energy conservation that would support your answer to question 1?

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**Reading questions for Activity 1.2**

*Read through the provided article and answer the following questions.*

1. One way to think about energy is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. In order to make the accounting process easier, we define \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each system and its surroundings.
3. List the 2 ways this is done:
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ spheres are part of the system with no surroundings.
   2. \_\_\_\_\_\_\_ sphere as the system and \_\_\_\_\_\_\_ sphere as part of the surroundings.
4. The system you define depends on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ you’re trying to explain.
5. When an object is moving \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then it has \_\_\_\_\_\_\_\_\_\_\_\_\_ kinetic energy.
6. After the collision, the change in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a result of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ transfer in the system.
7. When cars collide, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be observed on both cars.
8. If they’re moving slow, there is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ damage.
9. If they’re moving fast, there is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ damage.
10. When 2 cars crash, what do you think happens to the kinetic energy of the cars?

**Draw a model to help explain your thoughts.**