A Seedy Fruit Challenge

Background Information

Seeds develop from flowers once the egg cell in the ovary of a flower is fertilized. Generally, the ovary ripens into the fruit and provides a protective structure around the seed. Sometimes, the ripened fruit comes from another part of the flower such as the ovary wall, receptacle of the flower, or the fleshy tissue of the ovary.

Fruit is the ripened ovary and the other structures that surround it at maturity. As the ovary develops into a fruit, its wall often thickens and becomes differentiated into three, more or less distinct layers. These three layers together form the pericarp, which surrounds the seed or seeds.
The three layers are:

- **Exocarp** – The outer layer consisting of the epidermis (skin)
- **Mesocarp** – The middle layer consisting of the fleshy portion that we often eat
- **Endocarp** – The inside layer varies greatly from one species to another

Most angiosperms (flowering plants) have simple fruits, which can be categorized as follows:

Fleshy Fruits
These fruits have a pericarp that is soft and fleshy at maturity. Common fleshy fruits can be divided into groups as follows:

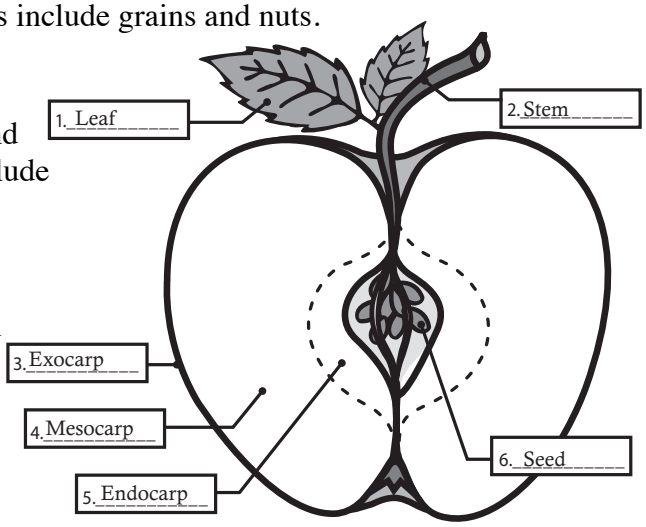
- **Drupe:** a fruit from a single carpel, in which the outer wall of the ovary has become fleshy and the inner part stony at maturity. Often termed a "stone fruit." Examples include peach, plum, apricot, cherry, and almond.
- **Pome:** Endocarp is papery, forming a core with several seeds, compound pistil; Examples include apple, pear and quince.
- **Pepo**: an accessory berry, with a relatively hard rind; Examples include watermelon, cucumber, pumpkin, squash, and cantaloupe.
- **Hesperidium:** a modified berry, in which the outer part of the ovary wall becomes leathery. Examples include orange, tangerine, lemon, lime, grapefruit.
- **Berry:** Ovary wall becomes fleshy throughout, one to many seeds. Examples: grape, eggplant, tomato, kiwifruit, and persimmon.

Dry Fruits
These fruits have a pericarp that becomes dry and hard at maturity.

- Legume (pod): Splits open along two seams. Examples include pea, green bean, and peanut.
- Capsule: Two or more fused carpels, the fruit splits open at maturity. Examples includes lily.
- Indehiscent dry fruit: Does not split open at maturity. Examples include grains and nuts.

Aggregate Fruits
Clusters of several ripened ovaries produced by a single flower and produced on the same receptacle of a single flower. Examples include raspberry, blackberry, and boysenberry.

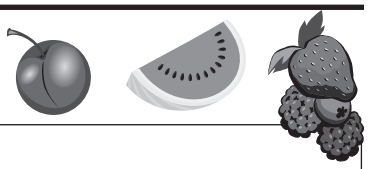
Multiple or Compound Fruits
Clusters of several ripened ovaries produced by several flowers in The same inflorescence. Examples include pineapple.



A Seedy Fruit Challenge

Name: _____

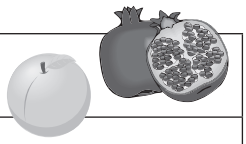
Dissect and record the following information for each of your three fruits.



Name of Fruit _____

Draw dissected half and label the **Exocarp**, **Mesocarp** and **Endocarp**.	Number of seeds _____ Color of seeds _____ Shape of seeds _____ Texture of seeds _____ Mass of fruit _____ Mass of seeds _____ Check the type of fruit: ☐ Fleshy ☐ Dry ☐ Aggregate ☐ Compound

Name of Fruit _____



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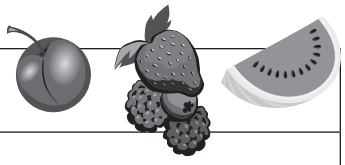
A Seedy Fruit Challenge *(continued)*



Name of Fruit _____

Draw dissected half and label the **Exocarp**, **Mesocarp** and **Endocarp**.	Number of seeds _____ Color of seeds _____ Shape of seeds _____ Texture of seeds _____ Mass of fruit _____ Mass of seeds _____ Check the type of fruit: ☐ Fleshy ☐ Dry ☐ Aggregate ☐ Compound

1. How are seeds protected? _____

_____

_____

2. Name three kinds of seeds that people eat: _____

_____

_____

_____

3. In what part of the flower do seeds come from? _____

_____

_____

4. What is the seed's function? _____

_____

_____

A Seedy Fruit Challenge *(continued)*

5. Name three ways seeds are transported in nature. _____

_____

_____

_____

Use a bar graph to compare the mass of each fruit and the mass of its seeds.

Example: