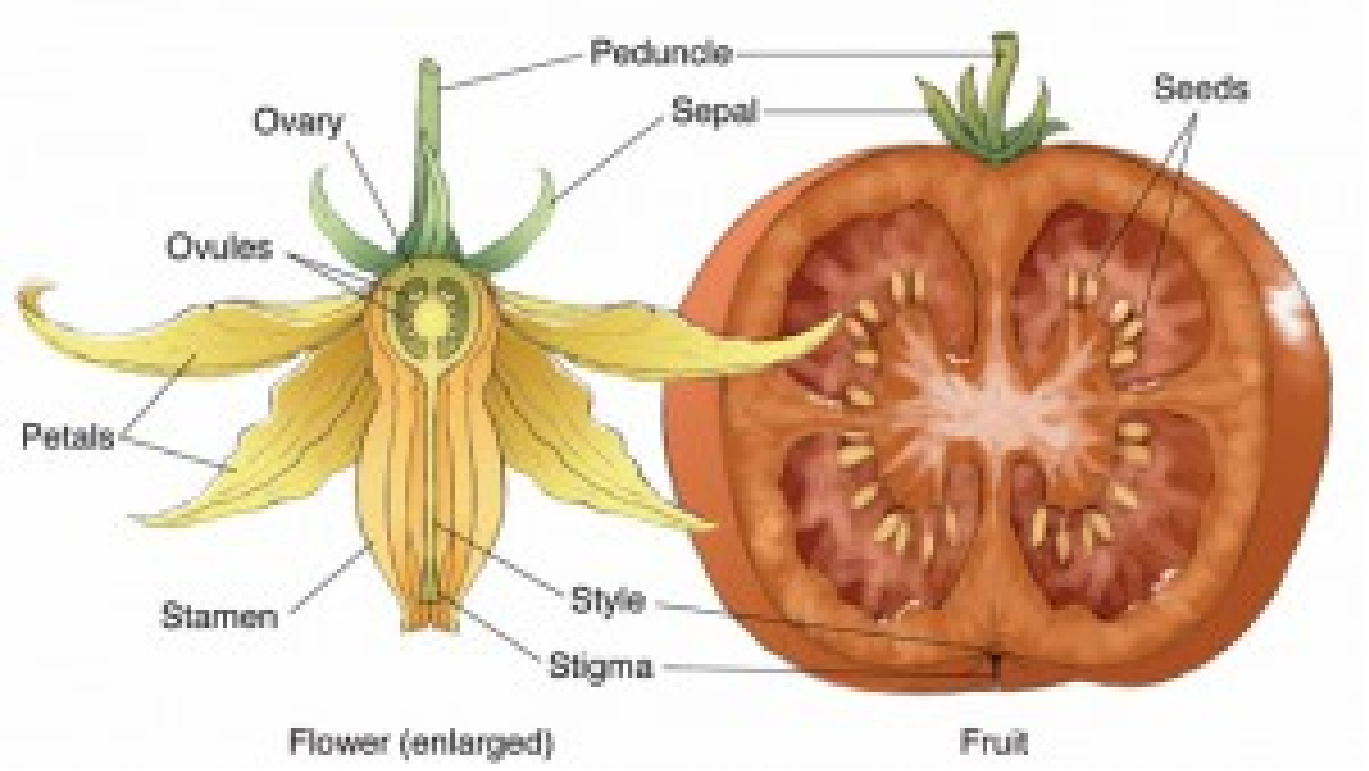
Fertilization

How a flower makes seeds and fruit



What do you notice about the two images – flower and fruit?

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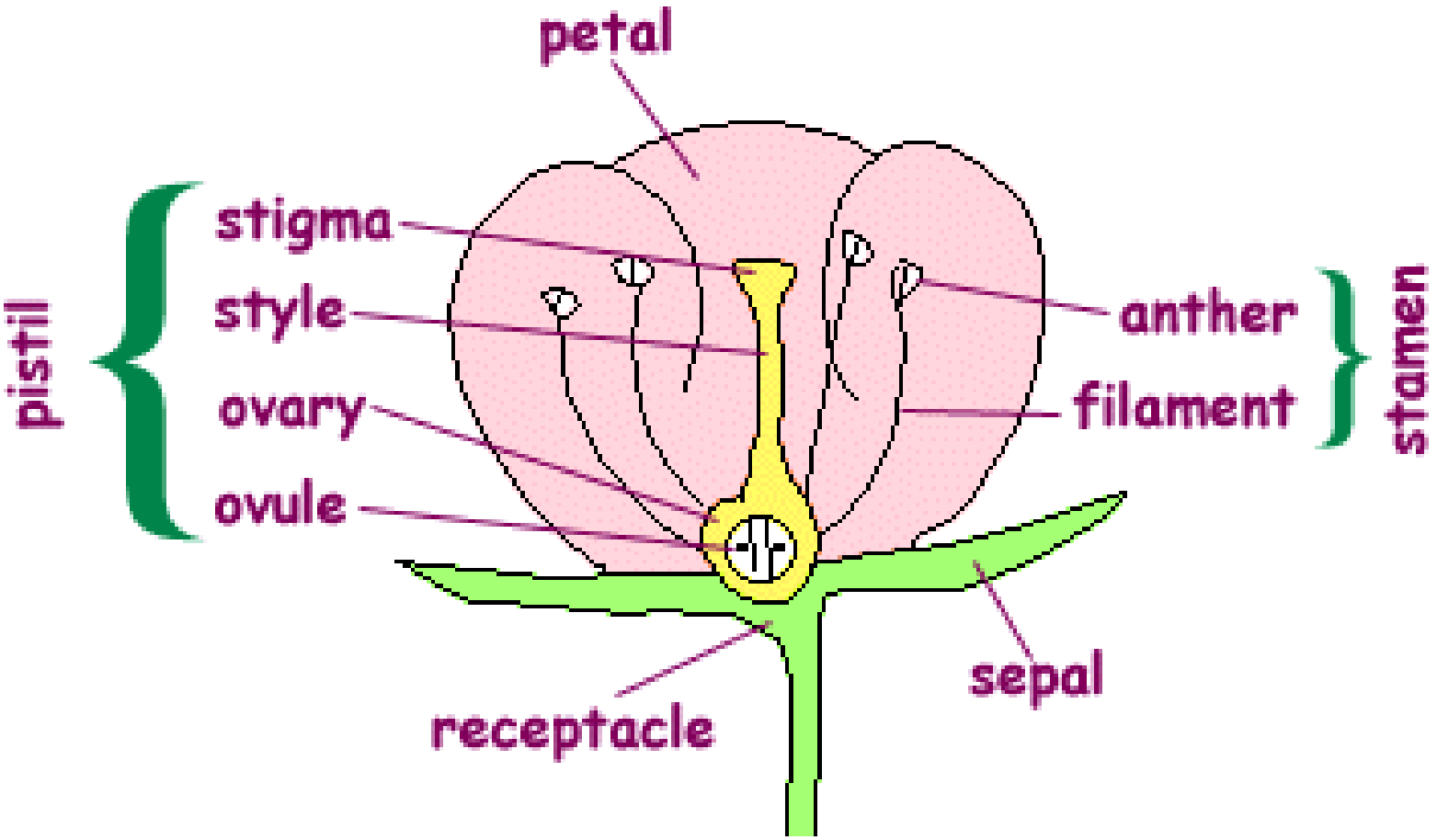
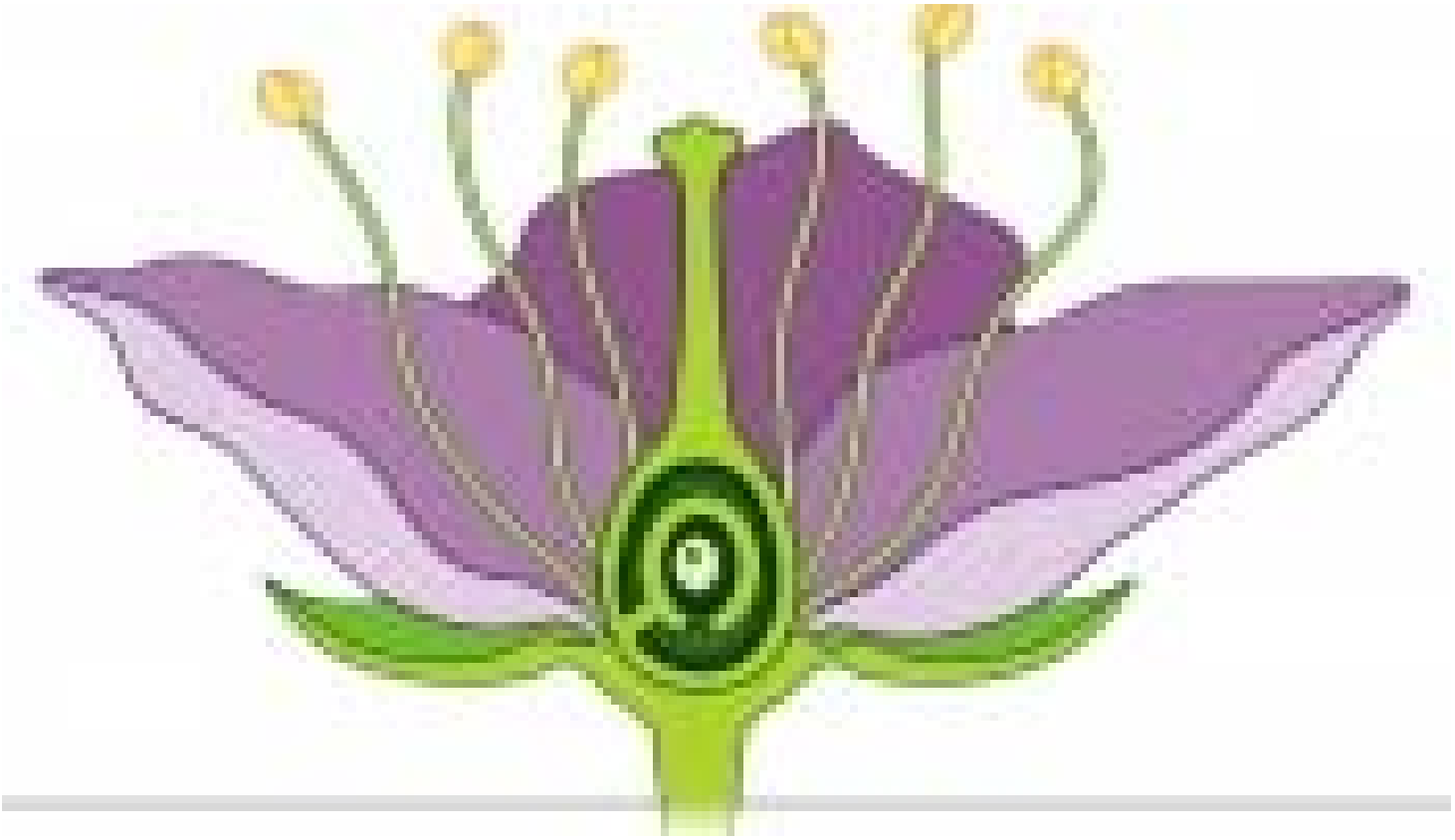
Flower Parts for Fertilization

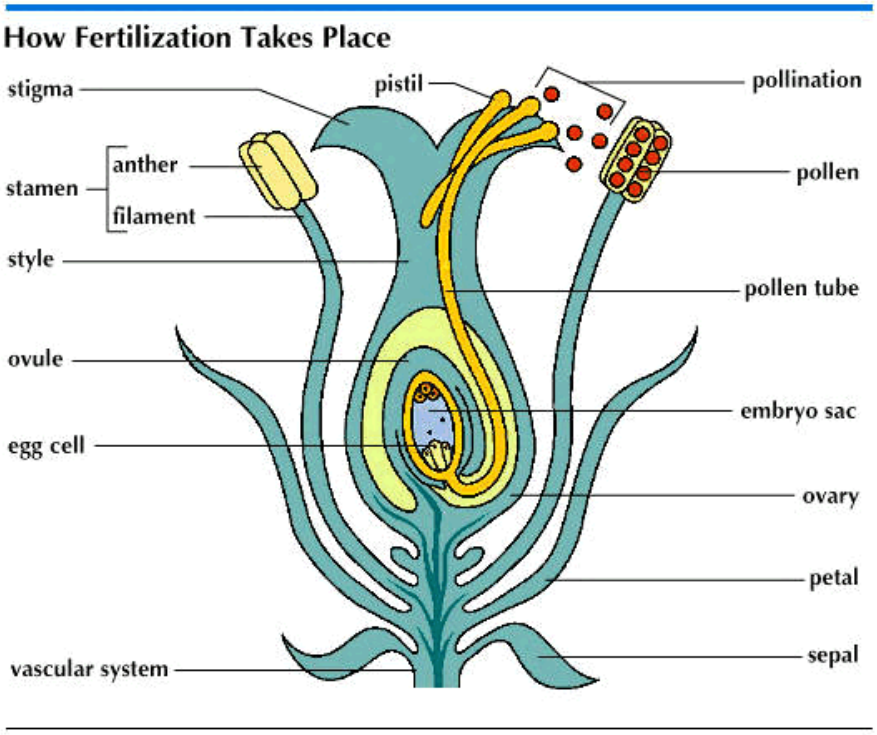


Do you remember the parts?



Steps of Flower Fertilization

1. Pollen lands on stigma. This is called _____
2. Pollen tube grows down the style of the pistil and into the ovary
3. Pollen + ovules → fertilization
4. Fertilized ovules → seed(s)
5. Ovary containing seeds swells and ripens into a fruit



Fertilization animation

Alstromeria

(Peruvian Lily) is the flower we will dissect with 3 petals, 3 sepals.

There are 6 **stamens** and a three-lobed, short, thin **pistil**.

Stamens may have a green **anther** cap, so you may not see pollen.

Flower Dissection Lab

Dissection Materials: You will need each item

- Paper plate with one flower called *Alstroemeria.*
- one toothpick
- a hand lens
- science notebook and a pencil

Please do not manipulate your flower unless you are given a specific direction. Ask a peer or raise your hand for assistance.

Alstroemeria Dissection Lab

Observe the flower.

1. What is the most notable feature?
2. What do you notice about the **petals** and **sepals** and their number and pattern?
3. Does this flower get **pollinated** by the wind or an animal? How do you know?
4. Is it a **perfect** flower (has both stamen and pistil) or **imperfect** flower (only stamens or only pistil)?

Draw your petal and sepal pattern in your notebook.

Gently pull off the petals and sepals and put them on your plate.

Alstroemeria Dissection Lab

Observe the stamen (with **anthers** and **filament)** and the small, thin, **pistil**.

1. Do you see **pollen**? There is an anther cap; pollen is not released until the flower is ready.

2. How is this **pistil** different from the diagrams you have seen?

3. How many **stamens** are there?____

Draw the **stamens** and **pistil** in your notebook and label them.

Gently pull out each of the stamens. Only a **pistil** and **ovary** (the bottom bulb-like structure) will remain.

Alstroemeria Dissection Lab

Dissect the ovary.

With your toothpick, make a vertical slice down the middle of the ovary and open it like a book. Place the two halves of the ovary on your plate.

1. What do you see inside the **ovary?**
2. What do you notice about the way **ovules** are arranged?
3. What needs to happen so **ovules** grow into seeds?

Draw your dissected **ovary** with **ovules** in your notebook and label them.

Use your hand lens to see the arrangement of **ovules**. Select a few on the end of your toothpick to observe.

Review of Flower Fertilization

1. Pollen lands on stigma. This is called _____
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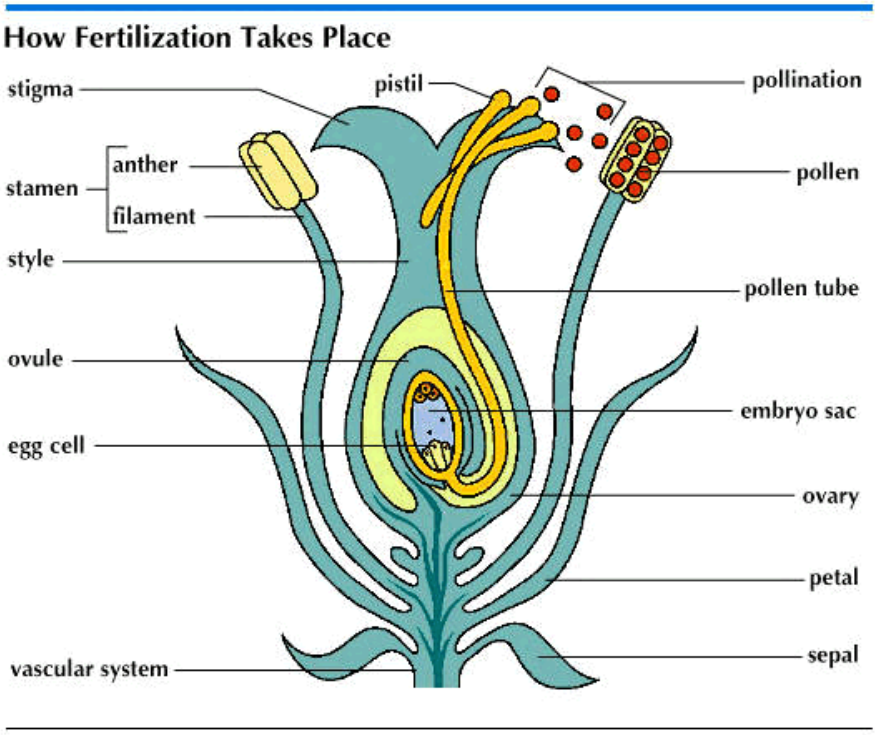
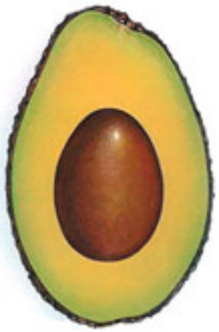
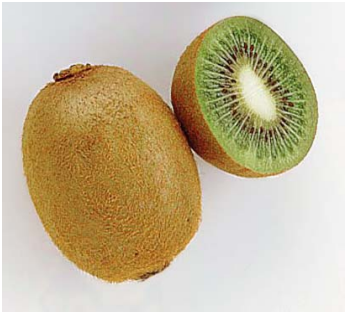


Fertilization animation

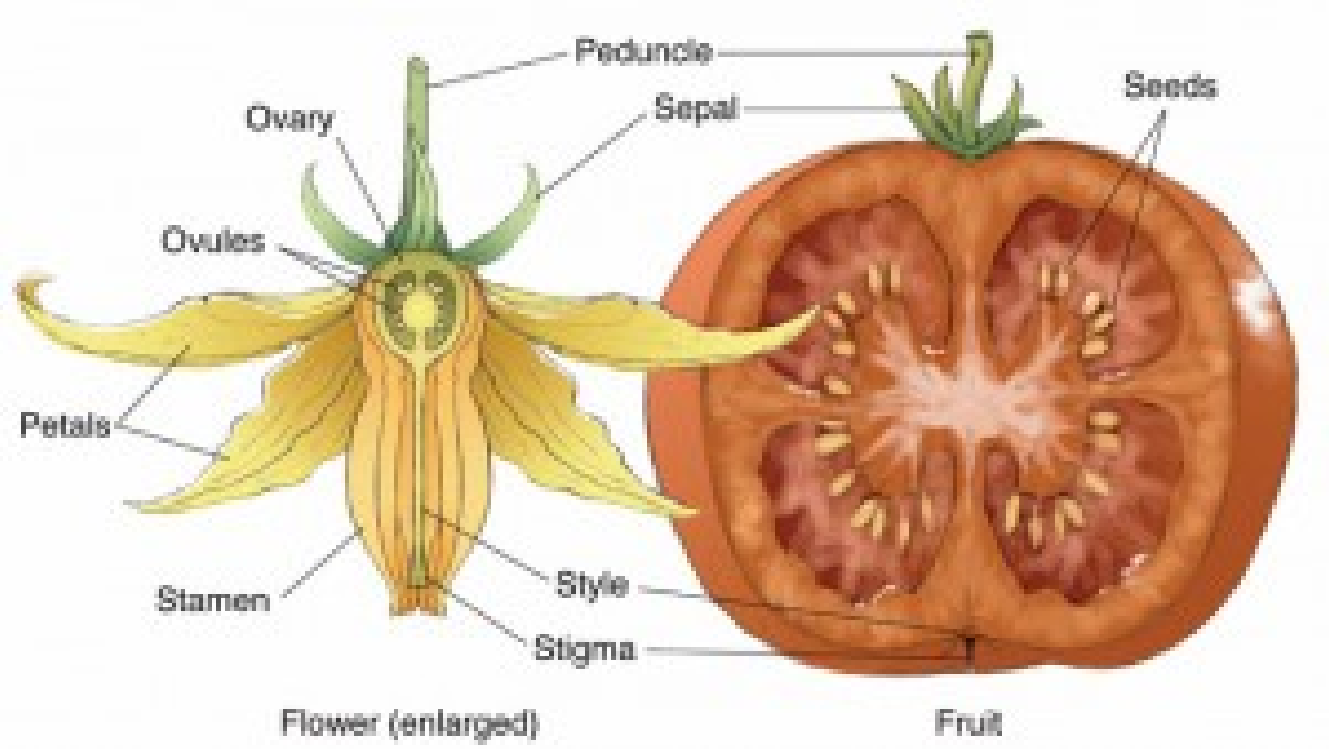
Ripened Ovaries You May Know





Fertilization

How a flower makes seeds and fruit



Explain what you learned about these two ovaries.

Why are flowers so important?

Thinking about Fruits

You may have to help pollinate your cucumbers and tomatoes in the Tower Garden.

What will happen after you place or shake the pollen on the pistils?

If you get cucumbers and tomatoes to grow, what part of the FLOWER are they?

Do those fruits have **seeds** or **ovules** inside? How do you know?

Terms and Definitions

pollen: microscopic grains formed on a part of the flower called stamens that are needed to make a seed
stamen: male flower part that contains an anther with pollen
anther: part of the stamen that holds pollen
pistil: female flower part with a stigma on top and an ovary on bottom where seeds are formed
stigma: sticky top part of pistil where the pollen from the anthers must land in the seed making process
pollen tube: tube extension of a pollen grain that leads from stigma of pistil to the ovule
ovary: part of the pistil that holds the ovules
ovule: structure in ovary that contains egg cells that develops into a seed/seeds after fertilization
fertilization: cells in pollen tube join together with the ovule to make seed
seed: plant part capable of growing into another plant
fruit: ripened ovary containing seed(s)
dispersal: the transport of **seeds** away from the parent plant
flowering plant life cycle: seed – seedling – young plant – adult plant with flowers – pollination & fertilization – fruit - seed