

# #3: Steps of the SCIENTIFIC METHOD

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- 1. Problem** .....(a question)
- 2. Hypothesis** .....(your prediction)
- 3. Materials** ..... (what you need)
- 4. Procedure** .....(step by step plan)
- 5. Observation**...(measurement, data, graph)
- 6. Conclusion** .....(what you discover)
- 7. Error** .....(where mistakes and outside factors effected results)

**"Please Help My Poor Old Cat Ernie"**

## #4: INDEPENDENT Variable

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- The “I” change variable
  - **MANIPULATED** variable
  - What was changed before the experiment starts
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## #5: DEPENDENT Variable

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- ❑ **MEASURED** change in experiment
  - ❑ What you OBSERVE
  - ❑ Collect DATA on
  - ❑ Responds / reacts to the Independent Variable
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## #6: Control Group vs. Experimental Group

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- ❑ The EXPERIMENTAL Group gets the Independent Variable. Can have multiple experimental groups
  - ❑ **CONTROL** group is exactly the **same** ***minus the independent variable***
  - ❑ You compare the results of the experimental group to the control group.
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# # 13: Cell Membrane

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- ❑ Surrounds and Protects the cell
  - ❑ Allows “stuff” (nutrients, water, waste) into and out of the cell
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# # 15: Cell Nucleus

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- ❑ “Brain” of Cell
  - ❑ Controls all cell functions
  - ❑ Has the D.N.A.
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## #46: Endoplasmic Reticulum (ER)

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- “Highway” of the cell
  - Looks like a network of tubes
  - Allows stuff (nutrients/waste), to move around the cell from one area to another
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# #45: Plant Cell vs. Animal Cell

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- Only plant cells have –
    - Cell Wall (cellulose / fiber)
    - Chloroplasts (green chlorophyll for photosynthesis)
    - Only one very large vacuole
    - Plant Cells DO **NOT** have Lysosomes
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# #47: Taxonomy

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- ☐ Classification system for life on Earth
- ☐ Remember = "[King Philip Came Over For Good Soup](#)"
- ☐ Kingdom
  - Phylum
    - ☐ Class
      - Order
        - Family
          - \* Genus
            - > Species

\*The more classification two species share, the more closely they are related

# #57: Photosynthesis

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- How plants (**autotrophs / producers**) can make their own food.
  - Occurs in **CHLOROPLASTS**
  - $\text{H}_2\text{O} + \text{CO}_2 + \text{Light} = \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2$
  - water + carbon dioxide + energy = glucose + oxygen
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# #58: Respiration

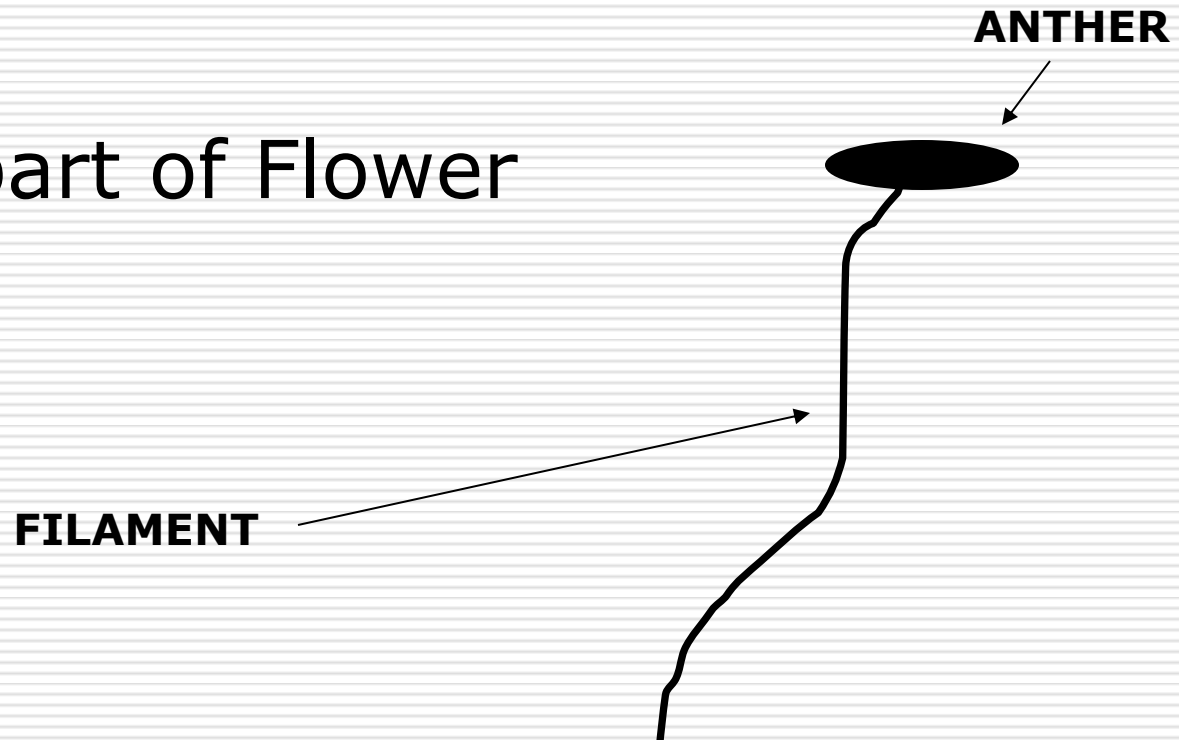
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- The burning of Glucose (sugar) for energy in Plants and Animals
  - Occurs in **MITOCHONDRIA**
    - Glucose+Oxygen  $\rightarrow$  Water+Carbon Dioxide+Energy
    - $C_6H_{12}O_6 + O_2 \rightarrow H_2O + CO_2 + \text{Heat}$
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# #64: Stamen

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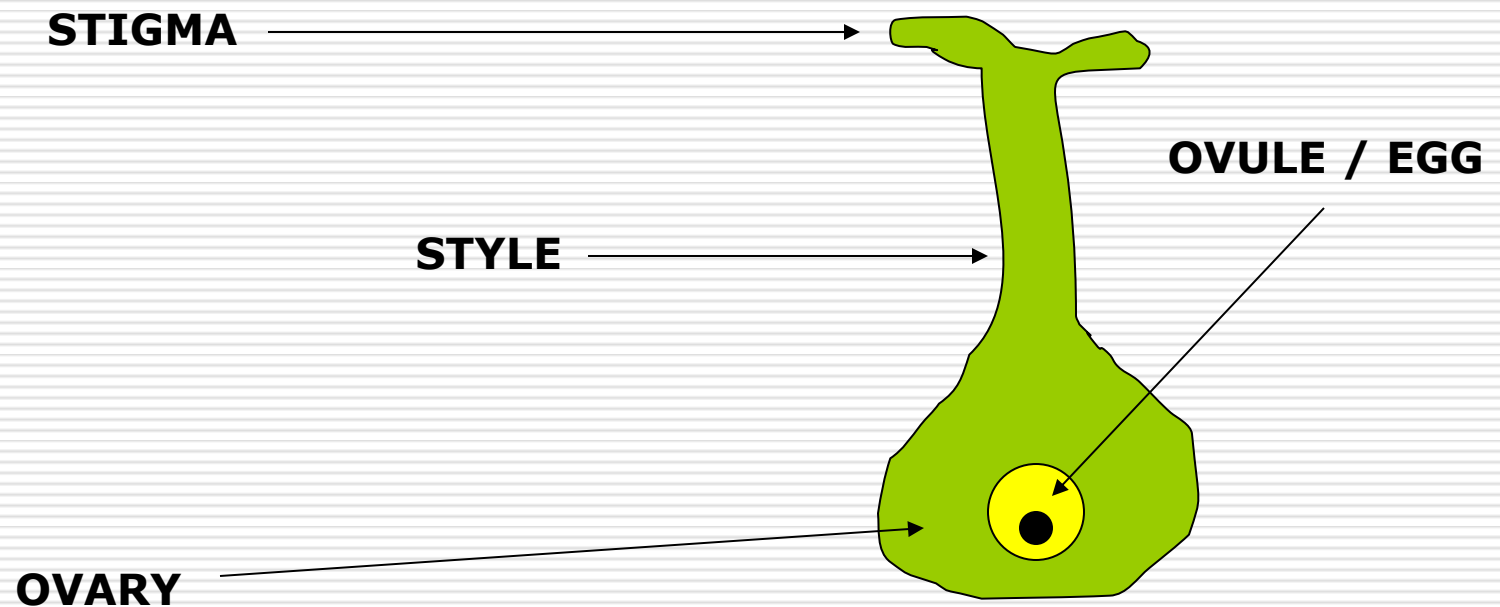
□ Male part of Flower



# #65: Pistil

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## □ Female part of Flower



# #66: Filament

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- Stalk part of STAMEN
  - Holds up / supports the ANTHER
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# #67: ANTHER

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- Top part of STAMEN

- Makes POLLEN

  - Contains Sperm Cell

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# #68: OVARY

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- Bottom part of PISTIL
  - Holds Ovule with Egg Cell inside
  - Grows into a fruit after Fertilization
    - Mmmmmmmmmmm!
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# #69: STIGMA

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- ❑ Top part of PISTIL
  - ❑ **Sticky** to catch Pollen Grains
  - ❑ “Sticky Stigma”
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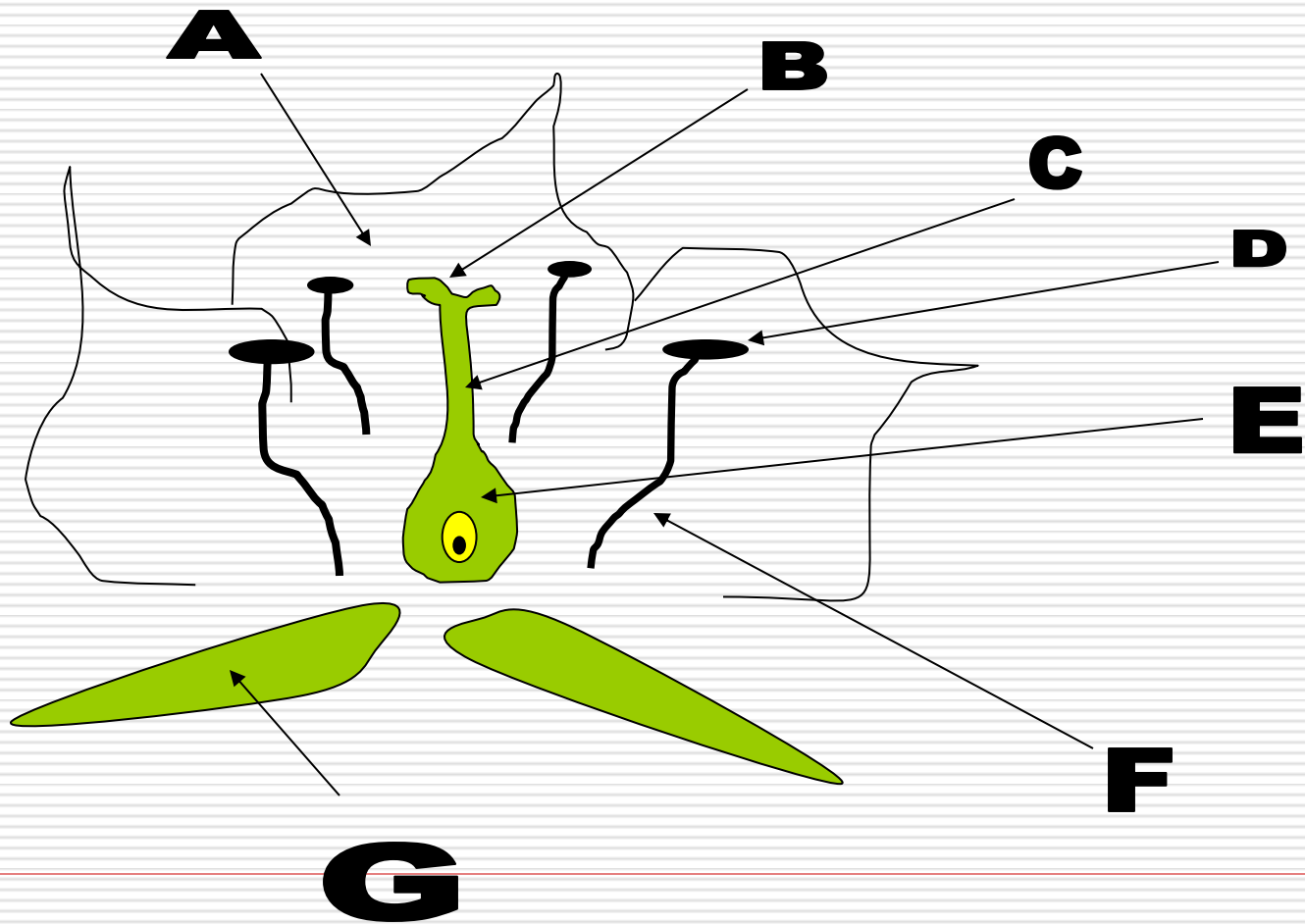
# #70: STYLE

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- ❑ TUBE part of Pistil
  - ❑ Sperm cell travels down Style from pollen grain to egg in ovule
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# #71

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# Back of #71

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- ☐ A – PETAL
  - ☐ B - STIGMA
  - ☐ C - STYLE
  - ☐ D - ANTHHER
  - ☐ E - OVARY
  - ☐ F - FILAMENT
  - ☐ G - SEPAL
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# #72: Pollination

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- ❑ **Cross Pollination:** When pollen from one flower sticks to the Stigma of another flower
    - **Animal Pollinators** – Bees and other insects are attracted to flowers for pollen and nectar,
      - animal gets food, plant gets sexual reproduction (**symbiosis**)
    - Wind Pollination – Pine Cones / grasses
  - ❑ **Self Pollination-** pollen from anther sticks to stigma of the same flower, still considered sexual, is NOT an example of asexual reproduction
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