How Do Plants Get Food for their Growth?

A. Fill in the Blanks

Complete the sentences with the correct word from the word bank.

bioluminescence, reflects, artificial, luminous, Sun

1. An object that gives off its own light is called _____.
2. The Moon is visible because it _____ light from the Sun.
3. A light bulb is an example of an _____ source of light.
4. The chemical process that allows animals like fireflies to produce light is called _____.
5. The star at the center of our solar system is the _____.

B. Match the Following;

Match the term in Column A with the best description or example in Column B.

Column A (Structure)	Column B (Function)
1. Luminous Object	A. A phone screen
2. Non-luminous Object	B. The process of light bouncing off a surface
3. Natural Source	C. A textbook
4. Artificial Source	D. The Sun
5. Reflection	E. An object that produces its own light

C. Practice Problems

Classify the following objects and answer the questions.

1. For each item below, classify it as Luminous or Non-luminous.
   - A star: _____
   - A mirror: _____
   - A firefly: _____
   - A planet: _____
   - A lit candle: _____

2. For each item below, classify it as a Natural or Artificial source of light.
   - The Sun: _____
   - A flashlight: _____
   - Lightning: _____
   - A phone screen: _____
   - A bonfire: _____

3. Explain in your own words why the Moon is considered a non-luminous object, even though it appears bright in the night sky.

4. What is the fundamental difference between a natural source of light and an artificial source of light?

5. Describe the path of light that allows you to see a book on your desk.

D. Warm-up Questions

Answer these quick questions to get your brain warmed up!

1. What is the Earth's primary natural source of light?
2. Name one artificial source of light you might find in your home.
3. An object that produces its own light is called a _____ object.
4. Is a wooden table a luminous or non-luminous object?
5. How does light travel from a source? (In a straight line or a curved path?)

E. Challenge Questions

Think critically to answer these more difficult questions.

1. Not all light sources produce heat. Compare how an old incandescent light bulb (which gets very hot) and a firefly produce light. What is the key difference in their energy conversion?
2. Imagine you are an astronaut floating in deep space, very far away from any stars or planets. If you shine a flashlight on your own spaceship, would you be able to see it? Explain why or why not.
3. Deep-sea creatures often use bioluminescence. What is bioluminescence, and provide two reasons why this adaptation would be useful in the deep ocean environment.
4. Can an object be both a source of light and a non-luminous object? Explain your reasoning with an example.
5. A laser pointer emits a very bright, focused beam of light. Is it a natural or artificial source? Explain how it is different from a regular light bulb in terms of how its light spreads out.

F. Word Problems & Application

Apply your knowledge to these real-world scenarios.

1. During a power outage at night, a family uses candles and a battery-powered lantern to see. Identify the light sources and classify each as natural or artificial.
2. An astronomer uses a powerful telescope to observe the planet Jupiter. Is Jupiter a luminous or non-luminous object? How is the astronomer able to see it?

3. A photographer is taking portraits inside a studio. It is a bright, sunny day outside, but they have closed the blinds and are using large, powerful lights called "strobes". Why would they choose to use these artificial light sources instead of the natural light from the sun?
4. While camping, you see the stars in the sky, a campfire you built, and the glowing screen of a GPS device. List these three light sources and classify each one.
5. You are reading a comic book. Is the comic book a source of light? Explain the role of a light source (like a lamp) and the comic book in the process of you being able to read it.

G. True or False

1. A mirror is a source of light because it makes a room brighter. _____
2. All sources of light are natural. _____
3. We see objects because our eyes send out light rays that bounce off them. _____
4. A lit match is considered an artificial source of light. _____
5. All luminous objects are extremely hot. _____