

Waves: Ao ~ Light

NGSS 1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
Science and Engineering Practices Planning and carrying out investigations to answer questions
Cause & Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes.

Phenomena: Ao ~ Light Found in Nature

What to do:

Check around your home and outside to list things you find that give off a light. **Be sure to tell an adult before you go outside!**

Lights inside my home Write each in the boxes below	Lights outside Write each in the boxes below

I learned _____

Waves: Kilo Ao ~ Light in Nature

NGSS Cross Cutting: Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3)

Phenomena: Lightning



I see ~ Maka nānā 👁️👁️ I notice. I observe.

1) _____

2) _____

3) _____

I think ~ Mana`o Lightning _____

Read the next page...

Waves: Kilo Ao ~ Light in Nature

Phenomena: Uila ~ Lightning



Lightning is electricity that comes from clouds in a thunderstorm. Lightning causes thunder to sound.

Lightning is caused when ice crystals rub against each other in the clouds that causes electrical charges to build up. When the cloud has too much electricity it lets some go as lightning. Lightning makes holes/channels in the cloud that causes air to collapse in and creates sound waves as thunder

Did you know there is more than just one kind of lightning?



This is **Forked Lightning**, because it has branches that look like a **fork**.



This is **Straight Lightning**, Has no branches. This lightning does not happen very often.



This is **Ribbon Lightning**, that happens on very windy days. It looks like a ribbon.



Sheet Lightning, stays inside the clouds. It looks like a sheet of light.



This is **Ball Lightning**. No one knows how they happen.



Cloud to Cloud Lightning does not go down to the land or ground.

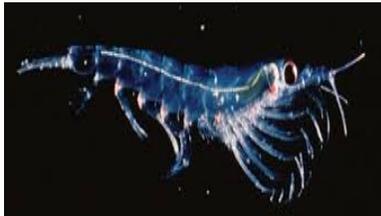
I learned lightning

Waves: Ao ~ Light in Nature Phenomena: Living Things That Glow

NGSS Cross Cutting: Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3)



Fireflies aren't the only ones...



I see ~ Maka nānā 🙄🙄 I notice. I observe.

1) _____

2) _____

3) _____

I think ~ Mana`o Living things that glow _____

Next, read this:

Waves: Ao ~ Light in Nature Phenomena: Living Things That Glow



Some fungi or mushrooms glow in the dark. Some think it is a way to get insects to come to them and carry their spores around so more mushrooms or fungi will grow.



Some bugs, like this firefly, glow in the dark. This is a sierra millipede that glows at night, but looks brown in the daytime.



The Blinking Snail lives on the ground. It is the only land snail that glows. Its light blinks on and off when it moves. The light is soft and hard to see.



Comb Sea Jelly

Lantern Shark

Deep sea animals are the only light in the very deepest oceans. It is so deep sunlight can't reach there. It is always dark.

Read the next page...



This shrimp glows blue.

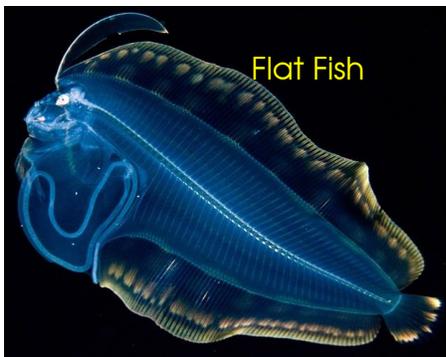


This shrimp shoots out a glowing cloud at predators like an octopus shoots out ink to hide from predators and swim away.

Hawai`i has animals that glow, too! They live in the ocean around us.



The **Hawaiian Bobtail Squid**, lives in shallow ocean waters. It glows with a **blue** light that hides it from predators in the ocean.



These animals live in the deep, deep ocean around the Big Island.



I learned _____
