

Would you rather have bee vision or human vision?

Pretend you are a bee. How would you see the world?

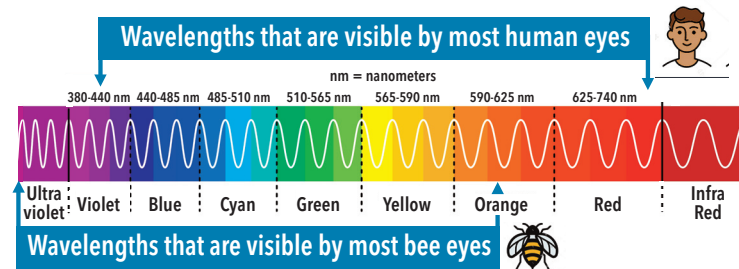
Bees see different than humans. Vision helps bees see flowers from afar to help them find food (nectar and pollen), but also to find their way around. Here are four different ways bee vision and human vision differ.

1 How many eyes do you have?



Bees have five eyes! Their two big eyes (called *compound eyes*) have thousands of tiny lenses each. These eyes help bees find flowers by sensing differences in light, color and movement. Bees' three small eyes (called *ocelli*) detect brightness and intensity of light, not images, and are arranged in a triangle between the compound eyes.

3 How many colors can you see?

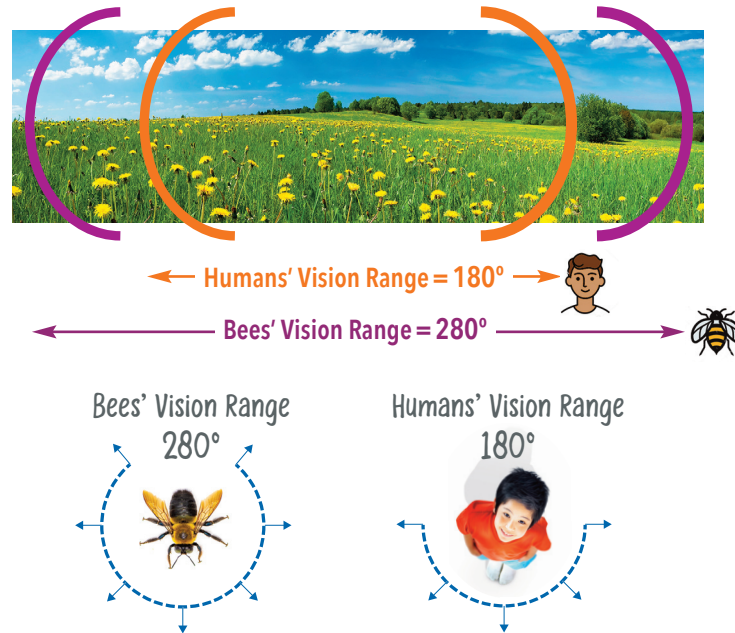


Different colors of light have different wavelengths. A wavelength is the distance between the peaks of two waves. Different animals, like bees and humans, can *perceive* different ranges of wavelengths or colors.

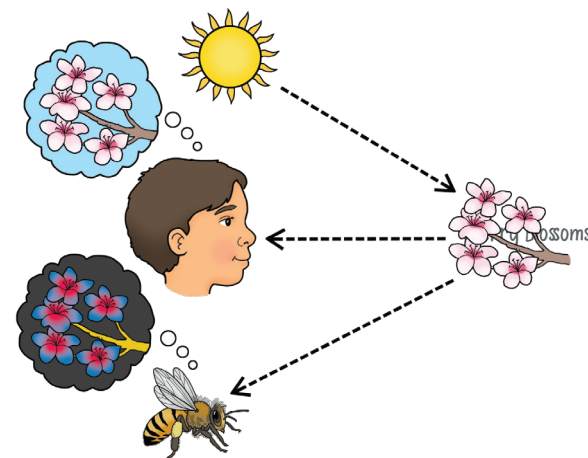
- Bees, unlike humans, can perceive all shades of violet.
- Bees can see ultraviolet light (UV), which humans cannot see at all. Some flowers have UV color patterns on them which guide bees to a flowers pollen or nectar.
- Bees cannot see all shades of red. To a bee, red objects look grey.

2 How far around you can you see?

Bees can see 280 degrees around them. Humans can see only 180 degrees. So bees can see way more flowers (food) when they are hungry!



4 How do bees and humans see the same objects differently?



Bees and humans are able to see objects, like flowers, when: 1) light reflects from the object, 2) and enters the eye, 3) where eye (cone) cells decode the lights wavelength as a distinct color. Since bee and human eye cells code differently they see some objects as different colors.

5 Do you see light patterns in the sky?

As bees leave their house (nest) they have a sense of where the sun is in the sky and an internal clock of what time it is to help them *navigate* (find their way around). Bees can also perceive patterns of light as it passes from the sun through the small particles and gasses in our *atmosphere* (layer of gases around the earth or other planet). These patterns of light are why the sky looks blue or a sunset looks orange. Bees can perceive these patterns in the sky and use them to help navigate between a patch of flowers and their way back home to their nest, like a map. Some sailors can find their way in the seas using the stars. This is like how some sailors can use the stars to navigate the seas.



section on blankets maybe