

# Discovering Outdoors Sheet

Junior Ranger

## SEEING THE WORLD IN STEREO!



Step outside and try this little experiment. All you need are two working eyes and one finger! Close one eye and look at your finger. Now open it and close the other eye. Notice how your finger seems to 'jump' from side to side?

Your eyes are about 6 centimetres apart, so they see your finger from different angles. Your finger seems to 'jump' because your brain is actually seeing two different images as you swap between eyes! When both eyes are open, your brain combines the two different images into one three-dimensional (3D) image. This is called seeing in stereo, or **stereo vision**.



Why does it jump?

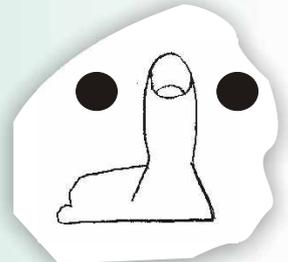
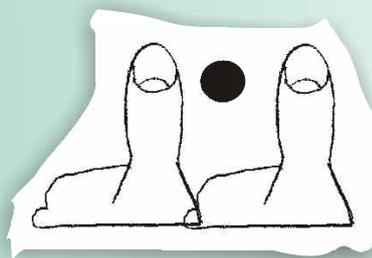
This next experiment will show you if both of your eyes are working together.



- Focus your eyes on the dot.
- Put your thumb in front of your nose.
- Continue to focus on the dot. If both eyes are working, you should see something like the first picture.
- Now, switch your focus to your thumb. You should now see something like the second picture.



It worked!



Don't worry too much if this didn't work for you. About 12% of people can't see in stereo properly.

We aren't the only animals with stereo vision. Some animals have their eyes placed on the front of their head, like we do. They can also focus both eyes on one object and see it in stereo. Other animals have eyes on the sides or even on top of their head, so they can't do this.

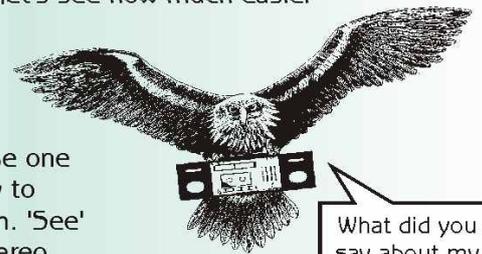
But what's so great about stereo vision?



Your brain can judge distance and speed much more easily with stereo vision. So let's see how much easier it is to 'hunt' with stereo vision.

First, use a finger to **rapidly** 'stab' at pictures on these pages with only one eye open. Now open both eyes and try again. Stereo vision makes it easier, doesn't it?

Next, hang up a small object at head height. Now, close one eye, pretend you are a bird of prey and dash in and try to snatch it. Not easy, is it? Try again with both eyes open. 'See' the difference? Birds of prey actually have fantastic stereo vision. This allows them to tell how far away their food is, and how fast they are catching up to it.



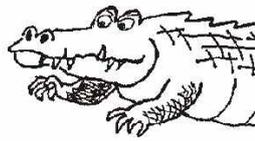
What did you say about my stereo?

Having forward facing eyes with stereo vision really makes hunting easier!

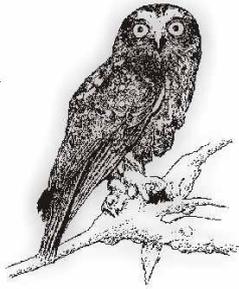


### PUZZLE PAGE - LOOKING FOR DANGER!

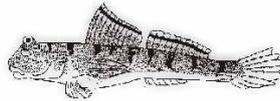
All clear!



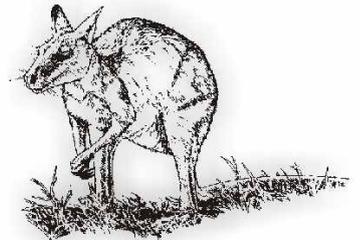
Stereo vision is great if you are a hunter, but not so great if you are the hunted! Hunted animals need to be able to see danger coming from all directions, not just in front of them. Having eyes on the sides or on top of their head makes this easier. Sort the animals pictured below into either hunters or hunted by drawing a line to the correct word. Need a clue? Look where their eyes are!



Southern Boobook



Mudskipper



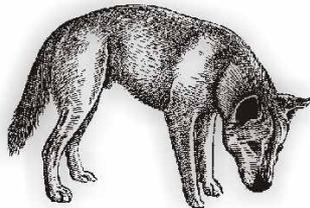
Agile Wallaby

**Hunter** or **Hunted**

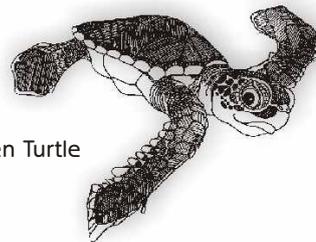
It's all in the eyes!



Crimson Finch



Dingo



Green Turtle



Domestic Cat

### FIND A WORD

'Hunted' animals need to spot danger coming from any direction. This type of vision has a special name. Find all of the words in this word search to reveal it. But be careful, they go in all directions! Locate the 10 leftover letters, by working from the top left and across then down. Then place them in the spaces provided.

- |        |         |        |
|--------|---------|--------|
| Angle  | Focus   | See    |
| Animal | Forward | Side   |
| Bird   | Front   | Sight  |
| Brain  | Hunted  | Stereo |
| Eyes   | Hunter  | Thumb  |
|        | Prey    | Vision |

H	S	S	E	P	E	D	R	S	I
U	T	I	P	Y	R	P	R	E	Y
N	E	D	H	A	E	E	R	E	A
T	R	E	W	V	I	S	I	O	N
E	E	R	H	U	N	T	E	D	G
R	O	A	L	A	N	I	M	A	L
F	O	C	U	S	D	R	I	B	E
T	N	O	R	F	T	H	G	I	S
N	I	A	R	B	T	H	U	M	B

\_\_\_\_\_ vision.

