

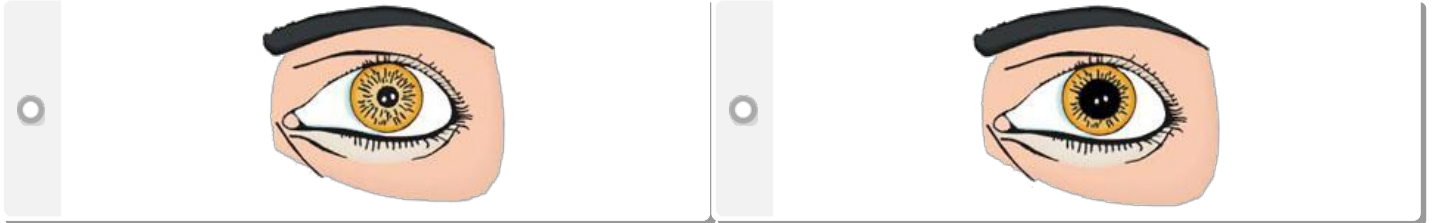
How safe are your sunglasses?

This task is about how light effects the eye and the use of sunglasses.



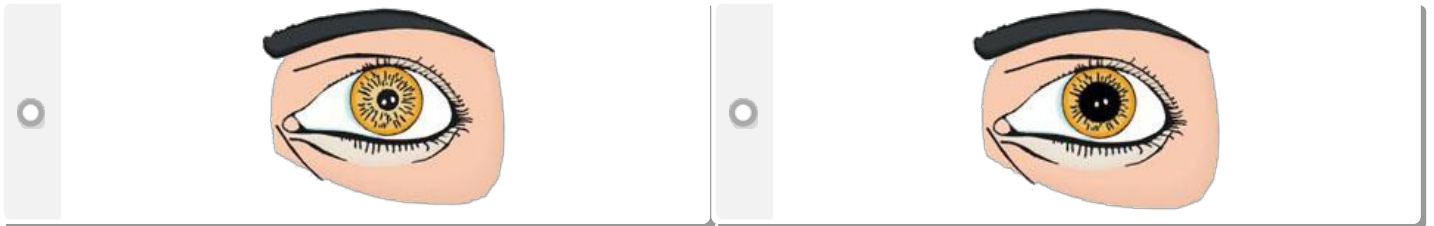
Read the information that follows and use it to answer the questions.

a) i) Which diagram shows what the eye would look like in bright light?



Explain your answer.

ii) Which diagram shows what would change if you were wearing sunglasses?



Explain your answer.

Here is some information about choosing sunglasses that are safe:

- All sunglasses stop some sunlight from reaching the eyes.
- Only some sunglasses also stop ultraviolet light (UV) from reaching the eyes.

b) UV light can "sunburn" the retina causing temporary blindness. Scientists say it is dangerous to wear sunglasses that do not filter out UV light. Explain why scientists would say this about sunglasses, using:

- the information in the box, and
- your own understanding of how the eye is protected from bright light.

How can you tell which sunglasses are safe?

- It is possible to test the amount of UV that can get through sunglasses.
- There is a "safety standard" that sets the amount of UV it is safe for sunglasses to let in. In Australia, sunglasses have to display a sticker with a number from 0 to 4 showing how much UV protection they give. No UV protection is 0 and the most UV protection is 4. In New Zealand, sunglasses do not have to have this sticker.
- Cost is no guide to safety. Some cheap sunglasses are safe and some expensive ones are not.

c) Who would be the best people to test and check sunglasses to see if they are safe?

<input type="radio"/> the people who wear them	<input type="radio"/> the people who sell them	<input type="radio"/> technicians in testing laboratories	<input type="radio"/> scientists who investigate eye safety
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Explain your answer.

d) Who are the best people to set the safety standard for sunglasses?

- | | | | |
|--|--|---|---|
| <input type="radio"/> the people who wear them | <input type="radio"/> the people who sell them | <input type="radio"/> technicians in testing laboratories | <input type="radio"/> scientists who investigate eye safety |
|--|--|---|---|

Explain your answer.



In Australia, lens category 4 sunglasses have a safety sticker that looks like this.

They are designed to be worn in places where people are at risk of getting too much UV over a long period of time. These glasses cut out much more light than ordinary sunglasses. If the retina gets too much UV for too long it can become damaged so badly that the person goes permanently blind.

e) What do you think the safety sticker means?

f) Why would glasses that cut out a lot of light need a sticker like this?