STEM | Quiz rods and cones

TASKS

Answer the following multiple choice questions about the eye.

1. Rods and cones are receptors in the retina of the eye. What type of receptor are they?

a) ☐ *Osmoreceptors* c) ☐ *Photoreceptors*

b) ☐ *Baroreceptors* d) ☐ *Chemoreceptors*

2. Rods & cones contain light-sensitive pigments which undergo a chemical change when they absorb light. What is this chemical change called?

a) ☐ *Bleaching* c) ☐ *Hydrolysis*

b) ☐ *Neutralisation* d) ☐ *Condensation*

3. When light bleaches the photosensitive pigments in rods and cones, the energy released causes the membranes of rods & cones to become...

a) ☐ *Less permeable to Na+ ions* c) ☐ *Less permeable to K+ ions*

b) ☐ *More permeable to K+ ions* d) ☐ *More permeable to Na+ ions*

4. Which is the correct sequence of 'potentials' following depolarisation of rod and cone membranes?

a) ☐ *Generator, Action, Threshold* c) ☐ *Generator, Threshold, Action*

b) ☐ *Action, Generator, Threshold* d) ☐ *Threshold, Generator, Action*

5. The blind spot contains...?

a) ☐ *Neither rods nor cones* c) ☐ *Rods and cones*

b) ☐ *Cones but no rods* d) ☐ *Rods but no cones*

6. Which statement about rods is NOT correct? They are...

a) ☐ *Located in the peripheral retina* c) ☐ *Not sensitive to colour*

b) ☐ *Sensitive to dim light (high light sensitivity)* d) ☐ *Concentrated in the fovea*

7. Which statement about cones is NOT correct? They are...

a) ☐ *Sensitive to colour.* c) ☐ *Concentrated in the fovea.*

b) ☐ *Sensitive to dim light (high light sensitivity).* d) ☐ *There are three different types*

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8. Which statement is correct? According to the trichromatic theory, the retina has three types of...

a) ☐ *Rods, containing red, green & blue pigments*

b) ☐ *Rods, sensitive to red, green & blue light*

c) ☐ *Cones, sensitive to red, green & blue light*

d) ☐ *Cones, containing red, green & blue pigments*

9. Which of the following is correct for rods? Rods have...?

a) ☐ *Low light sensitivity, high visual acuity*

b) ☐ *Low light sensitivity, low visual acuity*

c) ☐ *High light sensitivity, high visual acuity*

d) ☐ *High light sensitivity, low visual acuity*

10. Which of the following is correct for cones? Cones have...?

a) ☐ *High light sensitivity, high visual acuity*

b) ☐ *High light sensitivity, low visual acuity*

c) ☐ *Low light sensitivity, high visual acuity*

d) ☐ *Low light sensitivity, low visual acuity*

11. Which of the following does NOT explain why rods are sensitive to dim light?

a) ☐ *Rods are located in the peripheral parts of the retina*

b) ☐ *Rods contain the photosensitive pigment rhodopsin*

c) ☐ *Several rods synapse with one bipolar neurone*

d) ☐ *Several rods can combine to trigger an action potential*

12. All of the following statements about cones are correct, but which one best explains why cones have high visual acuity?

a) ☐ *Cones are concentrated in the fovea of the retina*

b) ☐ *There are 3 types of cone, which are sensitive to red, green or blue light*

c) ☐ *Cones contain the photosensitive pigment iodopsin*

d) ☐ *One cone synapses with one bipolar neurone*

Answer key: 1c, 2a, 3d, 4c, 5a, 6d, 7b, 8c, 9d, 10c, 11a, 12d

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