RESEARCHERS CREATE SUPER-VISION CONTACT LENSES

Scan to review worksheet

Expemo code:
1HLA-21LC-D22

1 Warm up

Match the images below to the correct superpowers.

flight invisibility super-strength X-ray vision

1. _____

2. _____

3. _____

4. _____

Discuss the questions below in pairs.

1. Which of these superpowers would you most like to have?
2. Can you think of some other superpowers that would be fun or interesting?
3. If you had a superpower, would you use it to help people or to help yourself?
4. Do you think people will use technology to give them 'superpowers' in the future? If so, how?

2 Pre-listening task: general vocabulary

Part A: Match words with the correct definitions.

Group 1

participant (n)	perceive (v)	procedure (n)	shade (n)
awkward (adj.)	contact lens (n)	visible (adj.)	

1. _____ that can be seen
2. _____ a small round piece of thin plastic that you put on your eye to help you see better
3. _____ a person who is taking part in an activity or event
4. _____ difficult or dangerous because of its shape or design
5. _____ become aware of something through the senses, especially through sight
6. _____ a medical operation
7. _____ a particular form of a colour, that is, how dark or light it is

Group 2

inject (v)	transparent (adj.)	colour blindness (n)	goggles (n)
particle (n)	readily (adv.)	thermal (adj.)	

1. _____ lack of the ability to see the difference between some colours, especially red and green
2. _____ a very small piece of something
3. _____ a pair of glasses that fit closely to the face to protect the eyes from wind, dust, water, etc. or give extra visual powers
4. _____ relating to heat
5. _____ (of glass, plastic, etc.) allowing you to see through it
6. _____ quickly and without difficulty
7. _____ put a drug or other substance into a person's or an animal's body using a needle

Part B: Discuss these questions in pairs.

1. Do you know anyone who is affected by colour blindness? What sort of problems might somebody with this condition experience?
2. Why do you think some animals have thermal vision?
3. Can you think of a situation in which night-vision goggles might be useful for people who aren't in the police or army?
4. Why might some people find contact lenses uncomfortable or awkward to wear?
5. Do you think that humans in the future will be able to perceive more shades or colours? Why/why not?

3 Listening for specific information

Listen to the report and tick the items you hear mentioned.

- ☐ light
- ☐ devices
- ☐ glasses
- ☐ study
- ☐ sight
- ☐ animals
- ☐ snakes
- ☐ price
- ☐ experiment
- ☐ eyes

4 Listening for comprehension

Part A: For each question, select the answer that most accurately reflects the information given in the audio. Listen to the report again to check your answers.

1. What could participants see while wearing the contact lenses?
   a. infrared light
   b. visible light
   c. both infrared and visible light

2. Where is Professor Tian Xue from?
   a. The University of Beijing
   b. The Science University of South Korea
   c. The University of Science and Technology of China

3. According to Tian Xue, who could the lenses help?
   a. people who can't see anything at all
   b. people who can't see the difference between some colours
   c. people who need to wear glasses in order to see clearly

4. Which animals can see ultraviolet light?
   a. sharks, dolphins and whales
   b. birds, bees, reindeer and mice
   c. vampire bats, snakes and wolves

5. Which animals have thermal vision?
   a. horses, rabbits and some dogs
   b. vampire bats and some snakes
   c. some types of mice, birds and bees

6. Who was injected with nanoparticles in a previous study?
   a. mice
   b. monkeys
   c. people

7. What could participants in the contact lens experiment see with their eyes closed?
   a. nothing
   b. the heat created by other people
   c. infrared light

8. When was the technology behind night-vision goggles invented?
   a. 1969
   b. 1949
   c. 1929

Part B: Read the sentence below. What does the underlined phrase mean? Can you think of a recent scientific invention that paved the way for medical advances? Discuss in pairs.

- My grandfather's work **paved the way** for advances in the treatment of eye problems.

5 Pre-reading task: general vocabulary

Part A: You are going to read an article in which four members of the public share their opinions on the contact lens story. Read the text quickly and find words that match the synonyms and definitions below in each section.

1. _____ (v, para. 1): put in
2. _____ (n, para. 2): the deliberate changing of the human body or physical appearance
3. _____ (v, para. 2): improve
4. _____ (v, para. 3): change
5. _____ (n, para. 3): a particular part or feature of a situation, an idea, a problem, etc.
6. _____ (v, para. 3): put a piece of equipment somewhere and make it ready to use
7. _____ (n, para. 3): a new idea, way of doing something, etc. that has been introduced or discovered
8. _____ (adj. para. 4): relating to genes
9. _____ (v, para. 4): identify
10. _____ (v, para. 4): change something completely so that it is the opposite of what it was before

Part B: Read the sentence below. What does the underlined phrase mean? Have you ever taken something for granted? Discuss in pairs.

- Here in England, we often **take things for granted**, such as access to running water and fast internet.

An eye of the future

Four members of the public share their views

1. Nissa, 28

   I hate wearing glasses. I've had to wear them since I was twelve, and I never really got used to them. I don't like the way I look when wearing them, and they're easy to lose or break. They're also very expensive. Having said that, contact lenses are even worse! I find them awkward to insert, and I've heard of people getting infections from using them. I did consider laser eye surgery, but again, I'm a bit worried about complications. If there was a cure for visual problems (I'm short-sighted) that didn't involve contact lenses, I would definitely be interested. I think people who have perfect sight take it for granted, sometimes.

2. Harvey, 34

   I'm so excited about the idea of body modification! I was one of the first to buy those augmented reality* glasses, and although the tech wasn't really ready, I keep up to date with all the advances. As a boy, I loved reading comic books about superheroes. Wouldn't it be amazing if we could improve our vision, maybe even see through walls, or turn invisible? My girlfriend thinks I need to grow up and spend my money on more important things, but I believe technology is the future of humanity. I know it sounds a bit crazy, but if I could replace my arms or legs with robotic ones, I would! In the future, if you don't upgrade your body you'll be left behind.

3. Kenneth, 52

   We don't really understand our own bodies, or the natural world. Why are we so keen to create new technology that could alter our physical abilities when we aren't sure how everything works? As somebody who has worked in both computing and medicine, I believe we need to be careful. I think we should focus our attention and money on curing diseases and conditions that make life shorter or more difficult, instead of trying to create some sort of half-human, half-machine. We're already having technology, such as AI, pushed into every aspect of our daily lives. I think that those rushing to have tech installed in their bodies might be in for a nasty surprise – a lot of the companies behind these innovations aren't interested in helping humanity.

4. Julia, 45

   My grandfather was born blind, due to a genetic condition that wasn't understood at the time. I suppose that's one of the reasons I became a doctor. I wanted to help people and improve quality of life for those who suffer from all kinds of conditions. My own eyesight is good, thankfully, but my husband is long-sighted and needs to wear glasses to read. Our son, who is seventeen, is colour-blind, a condition which affects around eight percent of males. His sister is an artist, and she finds it strange that her brother can't detect certain colours in her paintings. While the lenses in the report might be able to help my son, it would be nice to see research into technology that could reverse vision loss, or even cure blindness.

sources: heguardian.com, bbc.co.uk, cell.com

Glossary:

augmented reality: a technology that combines computer-generated images on a screen with the real object or scene that you are looking at

6 Reading comprehension

Read the article again. Match statements with the correct speakers. Some statements can be matched to more than one speaker. Note that some of the statements cannot be matched to any of the speakers and should be marked 'Not given'.

1. They have a family member who can't see at all. _____
2. They are excited about the potential for technology to improve human bodies. _____
3. They recently lost their eyesight. _____
4. They think that research into curing medical problems is important. _____
5. They have a relative who underwent a medical procedure related to sight. _____
6. They have considered having a medical procedure. _____

Part B: For each question, choose the answer you believe best suits the speaker.

1. Why doesn't Nissa like wearing glasses?
   a. People laughed at her at school because she wore glasses.
   b. She doesn't like the way she looks when wearing them, and says they are easily lost or broken.
   c. Her glasses got broken once when she was walking in the mountains, and she got lost.
2. What does Harvey think is the future of humanity?
   a. people working together to solve problems
   b. travelling to other planets
   c. technology
3. What does Kenneth think about companies that invent new technology?
   a. They should receive money from governments.
   b. People take them for granted sometimes.
   c. They may not have the best interests of humanity in mind.
4. Why did Julia become a doctor?
   a. She wanted to help her son, who was born blind.
   b. She originally wanted to be an artist, but found it difficult because she was colour blind.
   c. She wanted to help people like her grandfather, who was born blind.

7 Post-reading: medical vocabulary

Using the text above for reference, complete the definitions of the medical vocabulary below by filling in the gaps with the correct words from the list.

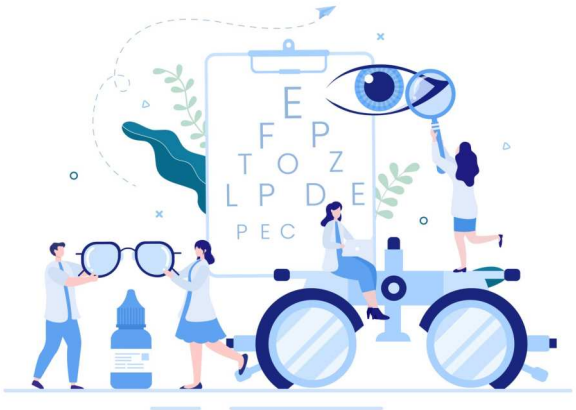
long-sighted blind complication infection laser eye surgery short-sighted

1. _____ **(n)**: a new problem or illness that makes treatment of a previous one more complicated or difficult
2. _____ **(n)**: an illness that is caused by bacteria or a virus and that affects one part of the body
3. _____ **(n)**: a medical procedure in which lasers are used to correct vision problems
4. _____ **(adj.)**: not able to see things that are close to you clearly
5. _____ **(adj.)**: able to see things clearly only if they are very close to you
6. _____ **(adj.)**: not able to see

8 Talking point

In pairs or small groups, discuss the following questions.

1. Why do you think some people are colour-blind?
2. Would you wear contact lenses that allowed you to see infrared light, or to have thermal vision? Why/why not?
3. What other types of body modifications could improve our senses or physical abilities?
4. Why do you think that some people like the idea of modifying their bodies?
5. Do you think that humans in the future will be more advanced than modern humans? If so, how?
6. Will we ever cure blindness?
7. Can you think of any ways in which technology has changed medicine recently?



9 Extended activity: essay and group task

Option 1: Write an opinion essay on ONE of the topics below. Your essay should agree with or disagree with the statement, and should be between 280 – 340 words long.

- It should be illegal to modify your body in a way that gives you an advantage over other people.
- We cannot evolve any further without the help of technology. It makes sense to use technology in order to advance beyond our natural abilities.

Option 2: Split into groups. A film studio has asked you to design a new superhero for a movie! Your group should decide what your superhero's name will be, which special powers he or she will have, and what your target audience will be.

- How will your superhero compete with existing characters?
- How will they be different? Will they wear a costume?
- What kinds of enemies will they have to fight against?
- Present your superhero to the class as if you are selling the idea to the film studio.

Transcripts

3. Listening for specific information

Newsreader: Researchers have created a new type of contact lens that allows people to see in the dark. When wearing the transparent lenses, participants in the study were able to see both visible and infrared light at the same time.

Newsreader: Professor Tian Xue, from the University of Science and Technology of China, has said that the research paves the way for wearable devices that could give people "super-vision". Tian Xue, who led the study, also said that the technology could also be used to help people who experience colour blindness.

Newsreader: Although humans can see many different colours and shades, other animals are able to perceive the world in more detail. Birds, bees, reindeer and mice can see ultraviolet* light, while some creatures, such as vampire bats and certain types of snakes, have thermal vision.

Newsreader: The research team behind the new lenses created something called upconversion nanoparticles. In a previous study, they injected these tiny particles into the eyes of mice, granting them near-infrared vision. However, they noted that such a procedure may "not be readily accepted" by humans, and instead developed soft contact lenses containing the same nanoparticles. During the experiment, wearers were able to see infrared light even with their eyes closed.

Newsreader: Night-vision goggles, which convert near-infrared light into visible light, have existed for almost a hundred years, with the technology first being invented in 1929. Such devices are often quite heavy and awkward to wear, and are typically only used by soldiers and police officers.

Key

1. Warm up

5 mins.

Tell the students they will be listening to a report on contact lenses that enhance vision, and reading an article in which four members of the public share their opinions on the topic. The discussion activity is suitable for pairs or small groups.

1. invisibility
2. X-ray vision
3. flight
4. super-strength

2. Pre-listening task: general vocabulary

10 mins.

Part A

Ask students to match the words with the correct definitions.

You may also want to elicit the following vocabulary:

infrared: having or using electromagnetic waves that are longer than those of red light in the spectrum, and that cannot be seen

ultraviolet: of or using electromagnetic waves that are just shorter than those of violet light in the spectrum and that cannot be seen

nanoparticle: a piece of matter less than 100 nanometres long

Group 1

1. visible (adj.)
2. contact lens (n)
3. participant (n)
4. awkward (adj.)
5. perceive (v)
6. procedure (n)
7. shade (n)

Group 2

1. colour blindness (n)
2. particle (n)
3. goggles (n)
4. thermal (adj.)
5. transparent (adj.)
6. readily (adv.)
7. inject (v)

Part B

For the second part, students should discuss the questions in pairs.

3. Listening for specific information

5 mins.

Individually or in pairs, ask students to listen to the report and tick the items they hear mentioned.

- ☑ light
- ☑ study
- ☑ snakes
- ☑ eyes
- ☑ devices
- ☑ animals
- ☑ experiment

4. Listening for comprehension

5 - 10 mins.

Part A

Individually or in pairs, ask students to select the answer that best fits each question, before listening again to check.

1. c. 2. c. 3. b. 4. b. 5. b. 6. a. 7. c. 8. c.

Part B

Students discuss the meanings of the underlined phrase in pairs.

Definition of *pave the way* (for somebody/something) - create a situation in which somebody will be able to do something or something can happen.

5. Pre-reading task: general vocabulary

15 mins.

Ask students to skim through the text quickly and match the synonyms and definitions to the key vocabulary in each paragraph. For Part B, students should discuss the meanings of the underlined phrase in pairs.

Definition of *take somebody/something for granted*: be so used to somebody/something that you do not recognise their true value any more and do not show that you are grateful

1. insert
2. body modification
3. upgrade
4. alter
5. aspect
6. installed
7. innovations
8. genetic
9. detect
10. reverse

Article sources:

https://www.theguardian.com/science/2025/may/22/infrared-contact-lenses-super-vision

https://www.bbc.co.uk/newsround/articles/c0mrjmejkdmo

https://www.cell.com/cell/abstract/S0092-8674(25)00454-4

6. Reading comprehension

10 mins.

Students should complete the task individually or in pairs.

Part A

For part A, encourage students to closely read the text and match the statements to the correct speakers.

1. Julia
2. Harvey
3. Not given
4. Kenneth, Julia
5. Not given
6. Nissa

Part B

For part B, ask students to choose the answer that most accurately reflects the question.

1. b. 2. c. 3. c. 4. c.

7. Post-reading: medical vocabulary

5 mins.

Ask students to complete the definitions of the target vocabulary items with the correct words from the list.

1. complication
2. infection
3. laser eye surgery
4. long-sighted
5. short-sighted
6. blind

8. Talking point

10 mins.

Ask students to discuss the questions in pairs or small groups.

9. Extended activity: essay and group task

At least 15 mins.

For the first option, students should write an opinion essay based on one of the given topics. Encourage students to choose a side and argue in favour of that position. For the second option, students should work in groups to design their own superhero for a film franchise. This activity would be more suitable for younger groups, but if an older class exhibits interest, you could focus on the marketing/selling aspect of the activity – perhaps show an example of a film pitch from YouTube. Students should consider their character's name, powers, appeal, etc. Younger groups may enjoy presenting their ideas as a poster.