

# SIGHT



The **Human +** The Future of Our Senses *Sight* episode shows us new ways of understanding how and what we see. It asks us to rethink our assumptions about colour vision, and what sight is.

A blind man learns to see, an artist sees beyond normal spectra, and athletes improve their sight.



# TOPIC

# 1

## Extraordinary vision

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When we think about sight, we often think of 20/20 vision as being perfect, and yet two characters show us ways of seeing that go beyond our normal ideas of “perfect vision.” Oscar improves his peripheral vision to enhance his skills as a boxer. Concetta uses her extended tetrachromatic colour perception to paint vibrant images. Both show us that humans can see more than we ever expected.

## DISCUSSION QUESTIONS

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Colour-blind people cannot see red even when a painting includes red, and in the same way, Concetta's paintings cannot show us what she sees. Are there ways that she could communicate incommensurable colours, which cannot be seen by most people?

- Because the majority of people cannot see the 100 million colours that Concetta can see, and because perception is so often shaped by consensus from our peers and our language group, it is possible that many people like Concetta—tetrachromats—do not know they are tetrachromats. How can someone understand that they see colours that no one else around them sees? Could this be why Concetta is attracted to art, so that her imagination can represent colours her language cannot?

- If perception is a skill that can be refined by practice, as with Oscar, are there other professions that could use this kind of exercise?

- Perception, often considered innate and fixed, can actually improve through practice. What does this tell us about our assumptions about our abilities?

- How might a colour-blind person understand tetrachromacy? In Micronesia, an entire island is populated by colour-blind people who have adapted to see tones better than normally sighted people. Is tetrachromacy then better than normal colour vision? Is colour blindness worse than normal?

- How might colour perception be altered, not just by biology and practice, but by culture and language?

## EXPLORE

Other stories about augmented human senses...

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### Colour tests

[https://www.colormunki.com/game/huetest\\_kiosk](https://www.colormunki.com/game/huetest_kiosk)

### Colour vision and language

<https://www.pnas.org/content/104/19/7780>

### The island of the colour-blind

<https://www.brainpickings.org/2017/01/24/the-island-of-the-color-blind-oliver-sacks/>

### Glasses that let blind people see

<https://www.international.gc.ca/world-monde/stories-histoires/2019/esight-technology-technologie.aspx?lang=eng>

<https://www.cnn.com/2017/09/20/these-amazing-electronic-glasses-help-the-legally-blind-see.html>

## Guess what?

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Men are much more likely to be colour-blind than women. That's because the genes responsible for the most common inherited form of colour blindness are on the X chromosome. Males only have one X chromosome, while females have two X chromosomes.

<https://nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/color-blindness>

**“I AM A MUTANT,  
I AM AN X-WOMAN”**

# TOPIC

# 2

## Seeing without seeing

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Technology has been at the forefront of helping those who can't see, from firefighters in smoky buildings to people who are blind. And yet, these innovations offer more than just technically improved vision—they can also support emotional connections between people. We meet Chris, who has a disease that causes both his sight and his hearing to degenerate, and we see how important sight is to his family. As Chris passes a sight test using an implant in his tongue that allows him to see, his young son turns to hug his mother.

## DISCUSSION QUESTIONS

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Why is it important for us to see our loved ones?

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What other ways of seeing are there that are not quite seeing?

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Blindness affects access to places because most of the world has been constructed with sighted persons in mind. When the seeing-impaired have assistants to “see” for them through GPS technology, what does that tell us about the importance of people-to-people connections? Will this kind of aid be better or worse if it is conducted mostly by A.I.?

## EXPLORE

Other stories about augmented human senses...

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**Blind people learning to use echolocation to see**

<https://www.newscientist.com/article/2145962-this-is-how-some-blind-people-are-able-to-echo-locate-like-bats/>

**Designing a world more accessible to the blind**

<https://99percentinvisible.org/episode/curb-cuts/>

**Scientist Anirudh Koul explains in this TED Talk how A.I. is transforming the lives of the blind.**

<https://www.youtube.com/watch?v=VtXRUTukjNU>



TOPIC

3

GROUP  
DISCUSSION

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Perfect/  
imperfect vision

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What ways would you like  
to see?

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How have humans constructed  
cities and homes to prioritize  
certain senses over others?



# HUMAN +

HUMAN + The Future of Our Senses  
Impact Campaign

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