WHAT IS
ACCESSIBILITY

Types of disability

Disabilities are often broken down into four broad categories:

- **visual**
- **auditory**
- **motor skill**
- **cognitive**

1. Visual

Vision disabilities include:

Low Vision (vision loss that cannot be corrected with glasses)

- Macular degeneration
- Glaucoma
- Diabetic retinopathy
- Cataract

Colour-blindness

- Protanopia (red deficiencies)
- Deuteranopia (green deficiencies)
- Tritanopia (blue deficiencies)
- Rod monochromacy (no colour)

Blindness

Which includes very little to no vision.

2. Auditory

Auditory disabilities include:

Hearing loss	Inability to hear:
Mild	• sounds below 30 decibels
Moderate	• sounds below 50 decibels
Severe	• sounds below 80 decibels
Profound	• sounds below 95 decibels • any sound in some cases

For people with mild hearing loss, **speech can be difficult to understand**, especially if background noises are present.

For people with moderate hearing loss, **a hearing aid may be required**.

For people with severe hearing or profound loss, **communication may be done through sign language**; others rely on lip-reading techniques.

3. Motor skill

Motor-skill disabilities include:

Traumatic Injuries

- Spinal cord injury
- Loss or permanent damage to limb(s)

Diseases & Congenital Conditions

- Cerebral palsy
- Muscular dystrophy
- Multiple sclerosis
- Spina bifida
- ALS (Lou Gehrig’s Disease)
- Arthritis
- Parkinson’s disease

4. Cognitive

Cognitive disabilities include various intellectual or cognitive deficits.

In simple terms, a person who has a cognitive disability **has trouble performing mental tasks** that the average person would be able to do.

This category includes:

- intellectual disability
- developmental delay
- developmental disability
- learning disabilities such as Dyslexia and ADHD.

It can also include conditions that cause **cognitive impairment**:

- acquired brain injuries
- genetic disability such as Down syndrome, Autism, and Dementia

Assistive technologies

Assistive technologies are products, equipment and systems that enhance activities for people with disabilities.

For digital accessibility, Assistive Technologies are often broken down into two categories:

- **Input devices**
- **Output devices**

Input devices

Input devices aid people **when interacting with** websites and applications.

An example would be where a user **has to fill in a form**.

However, it also includes simple activities such as **using keyboard functions to navigate** around a web page or web application.

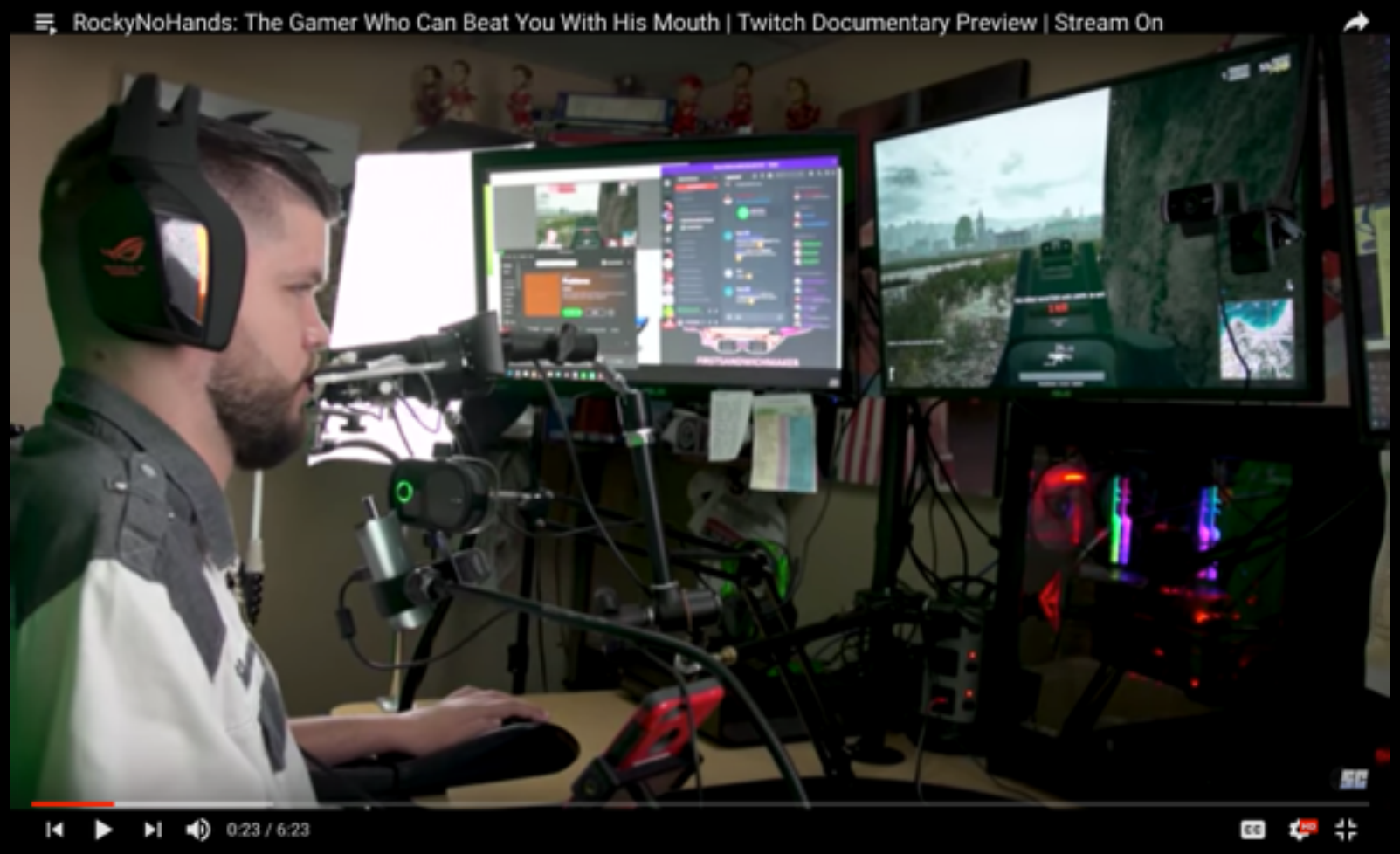
Input devices include:

Accessible keyboards, Track pads, Head wands, Mouth pieces, Puffers, Switches, Touch screens, Eye-trackers, Voice activation software, etc.

Judith: Cerebral Palsy

https://www.youtube.com/watch?v=CBlaiBV_yJs

Rocky: Tetraplegic due to spinal injury



https://www.youtube.com/watch?v=ZMvikz2cA-8

Output devices

Output devices aid people **when presenting information** from websites and applications.

Output devices include:

Magnifiers, Screen Readers, Refreshable Braille Devices etc.

Bruce: Blind/Partially deaf

Other barriers

As well as long-term disabilities, people can experience **situational or short-term barriers** that affect their ability to interact with websites and web content.

Vision barriers could include eye fatigue, blurred vision or even trying to look at a mobile screen in bright sunlight.

Auditory barriers could include hearing issues while in a room with loud music, or short-term hearing loss from exposure to loud noise.

Motor-skill barriers could include trying to perform a task while holding a baby, or with a broken arm

Cognitive barriers could including suffering from concussion or recovering from short-term memory loss.

Other barriers that are not technically disabilities but can have a major impact on peoples lives include **literacy and language**.

According to a 2009 ABS survey:

- **7.3 million** (44%) of Australians had literacy skills at Levels 1 or 2
- **6.4 million** (39%) at Level 3
- **2.7 million** (17%) at Level 4/5

http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4228.0main+features992011-2012

A large percentage of Australians with lower levels of literacy are non-native English speakers. This group is often referred to as **“English as a Second Language”** (ESL).

What is WCAG?

The **World Wide Web Consortium** or the W3C is an international community that develops the open standards for the Web.

The W3C produces **specifications** on a wide range of web-related topics including HTML, CSS and Accessibility.

Within the W3C, there is a sub-group called the **Web Accessibility Initiative** (WAI) Working Group.

The WAI Working Group has been responsible for developing the **Web Content Accessibility Guidelines** (WCAG).

WCAG

The WCAG guidelines **provide a standard for web content accessibility**.

WCAG 1.0 became a **W3C Recommendation** in May 1999.

https://www.w3.org/TR/WAI-WEBCONTENT/

WCAG 2.0 became a **W3C Recommendation** in December 2008.

http://www.w3.org/TR/WCAG20/

WCAG 2.1 became a **W3C Recommendation** in June 2018.

https://www.w3.org/TR/WCAG21/

WCAG Structure

- **4 Principles**
  - 12 Guidelines
    - 78 Success Criteria
      - Sufficient Techniques
        - Advisory Techniques
      - Failures

Four key “POUR” principles

- **Perceivable**
- **Operable**
- **Understandable**
- **Robust**

Perceivable: Information and user interface components must be presentable to users in ways they can perceive.

This means that **users must be able to perceive the information** being presented (it can't be invisible to all of their senses).

Operable: User interface components and navigation must be operable.

This means that **users must be able to operate the interface** (the interface cannot require interaction that a user cannot perform).

Understandable: Information and the operation of user interface must be understandable.

This means that **users must be able to understand the information as well as the operation of the user interface** (the content or operation cannot be beyond their understanding).

Robust: Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

This means that **users must be able to access the content as technologies advance** (as technologies and user agents evolve, the content should remain accessible).

- 4 Principles
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- 4 Principles
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The **78 Success Criteria** are a checklist that can be used to determine if a website/application conforms to WCAG 2.0 guidelines.

Each of the **78 success criteria** is defined as either A, AA or AAA compliance.

Level A: satisfies all the Level A Success Criteria.

Level AA: satisfies all the Level A & Level AA Success Criteria.

Level AAA: satisfies all the Level A, Level AA & Level AAA Success Criteria.

- 4 Principles
  - 12 Guidelines
    - 78 Success Criteria
      - **Sufficient Techniques**
        - Advisory Techniques
      - Failures

Sufficient techniques are **reliable ways to meet the success criteria** from an author's perspective and from an evaluator's perspective.

- 4 Principles
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      - Sufficient Techniques
        - **Advisory Techniques**
      - Failures

Advisory techniques are **suggested ways to improve accessibility**. They are often very helpful to some users, and may be the only way that some users can access some types of content.

- 4 Principles
  - 12 Guidelines
    - 78 Success Criteria
      - Sufficient Techniques
        - Advisory Techniques
      - **Failures**

Failures are things that **cause accessibility barriers and fail specific success criteria**. The documented failures are useful for authors and evaluators.