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Promoting Learning through Purposeful Imagery

Center for Teaching and Learning

CTL

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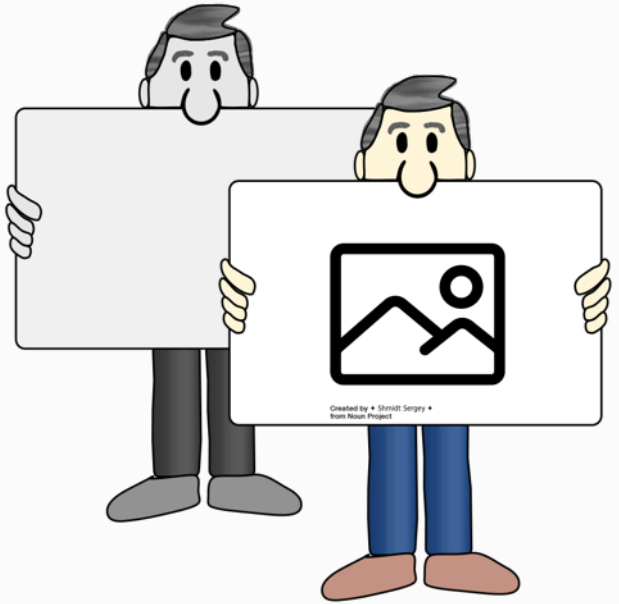
Pedagogy: Rationale and Implications

Promoting Learning

- Teaching with images enhances curriculum in a variety of ways:
  - Engagement
  - Reinforcement
  - Deeper (Sensory) Connections
  - Visual Literacy



The Many Roles of Images

- Intended
  - Information
  - Critical thinking
  - Engagement
  - Reinforcement
  - Design

- Unintended
  - Personal connections and separations
  - Visual literacy
  - Iconic

Purposeful Selection of an Image

- Does it demonstrate, add to, or reinforce a concept or objective?
  - Can it stand alone?
    - Consider context of surrounding text
    - Consider chronology in lecture
  - Is it a stimulus?
    - Consider all changes/reactions

- Is it an identifier/navigation aid?
  - Identifiers should be “low effort”

Purposeful Selection of an Image, cont.

- Is the media sensitive to:
  - Audience
    - Prior knowledge
    - Cultural responsiveness, etc.
  - Sustainability
    - Time (will it become dated?)
    - Design/Theme
    - Copyright vs. fair use

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Design, Sources, and Knowing the Law

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Selection of images

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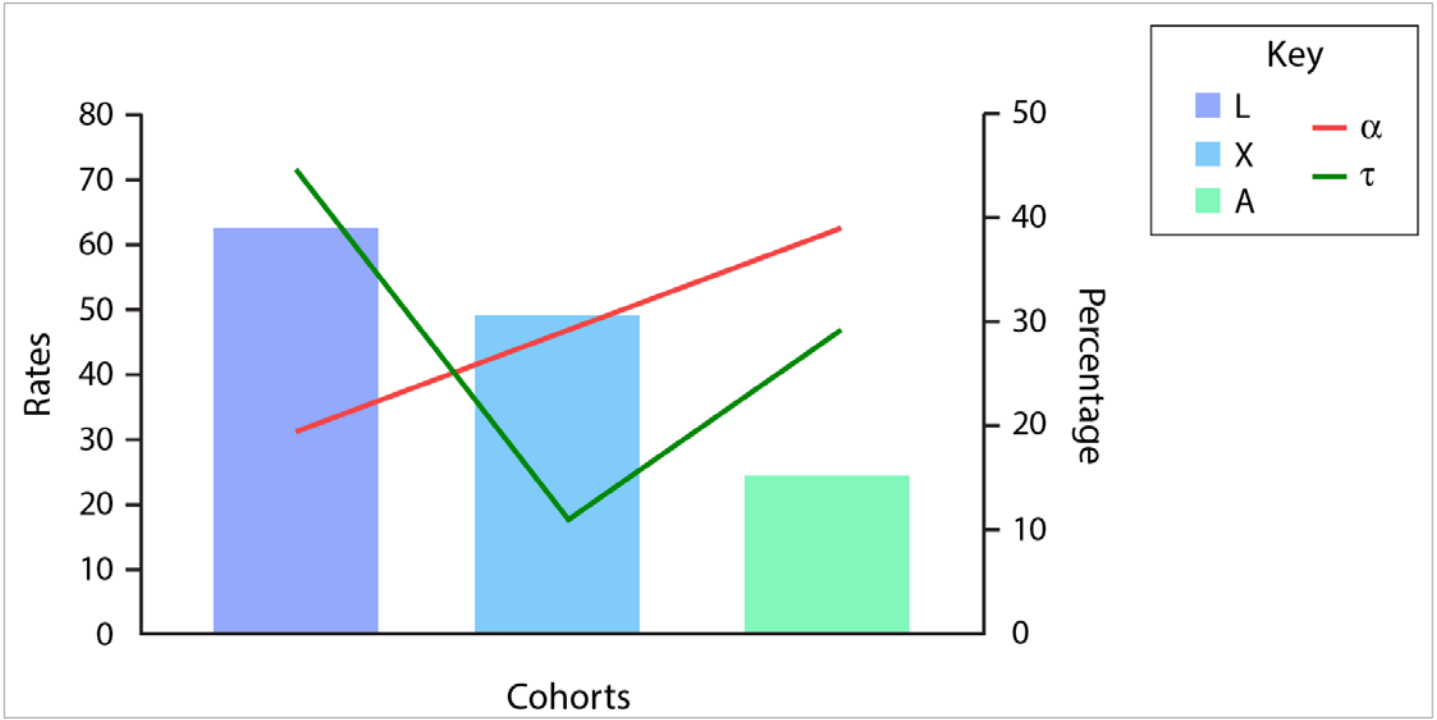
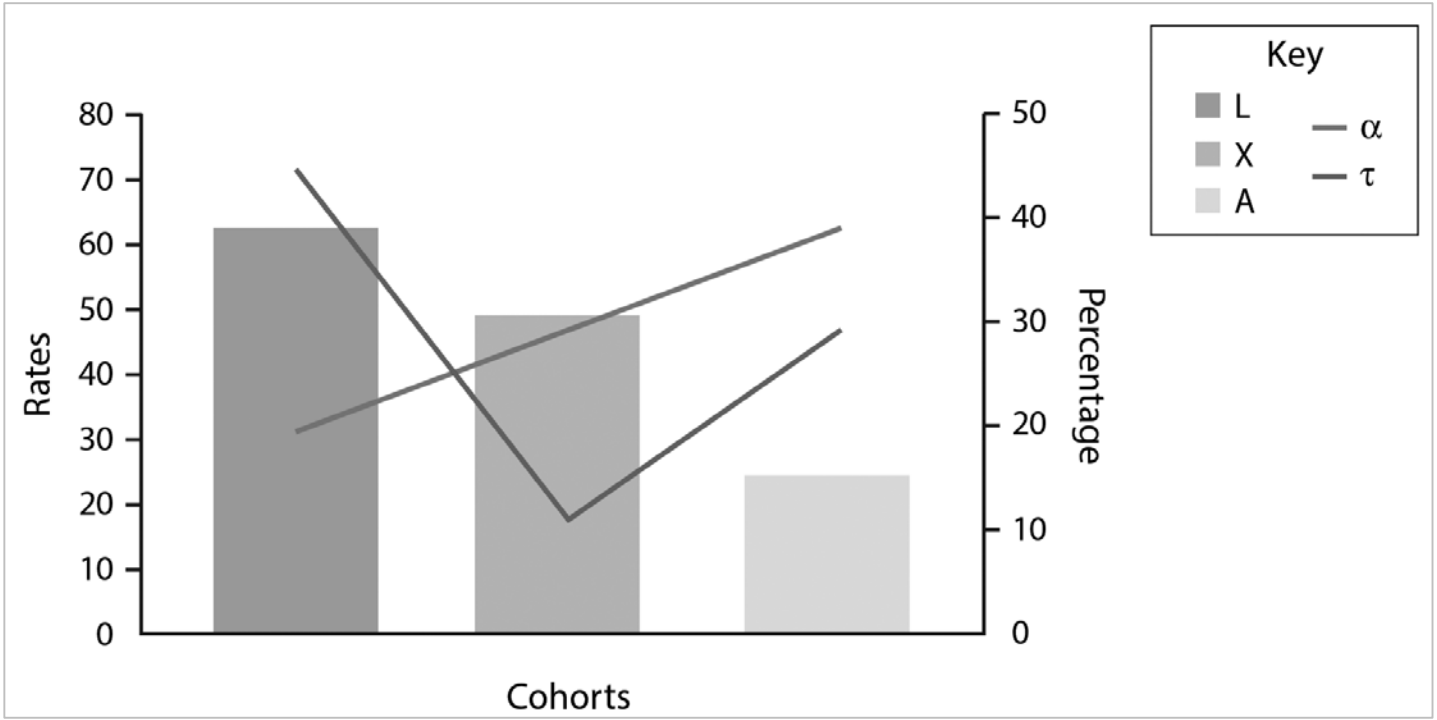
Color as the sole distinguishing characteristic



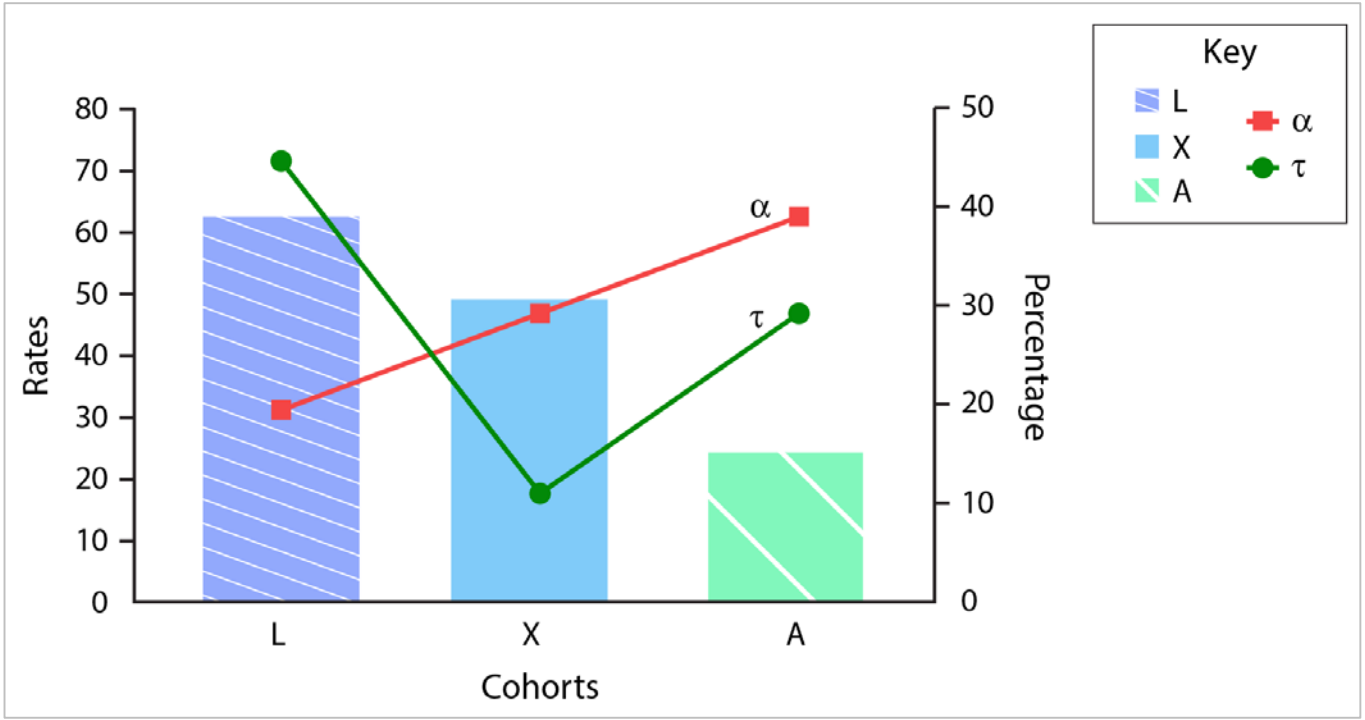
Source: CTL

Try viewing it in black and white



Source: CTL

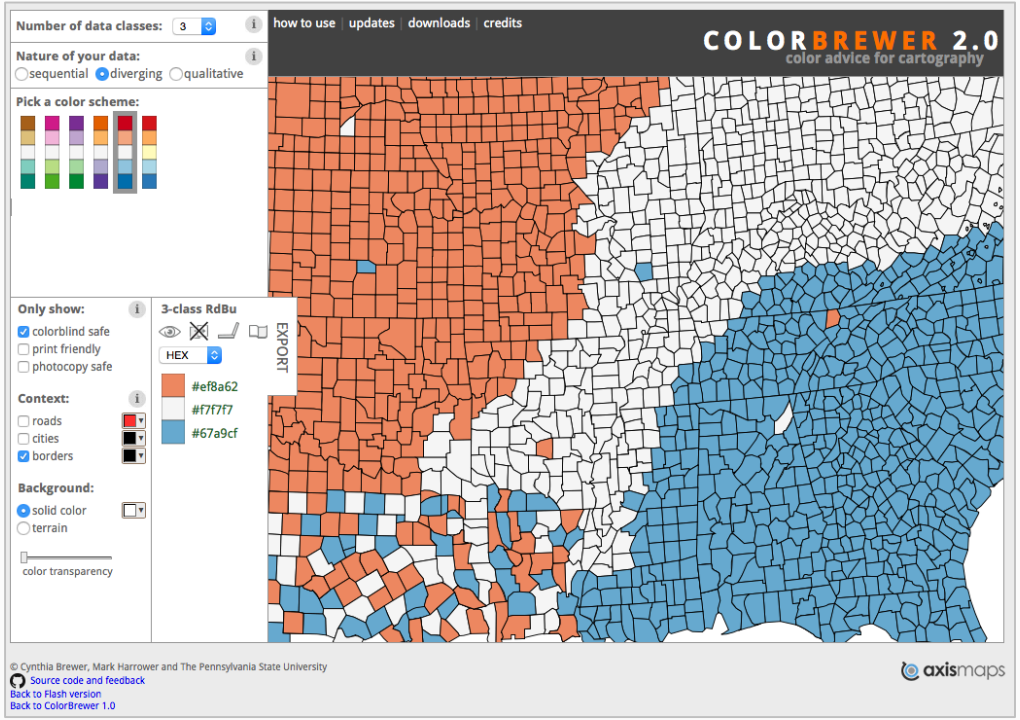
Possible solution – 1



Source: CTL

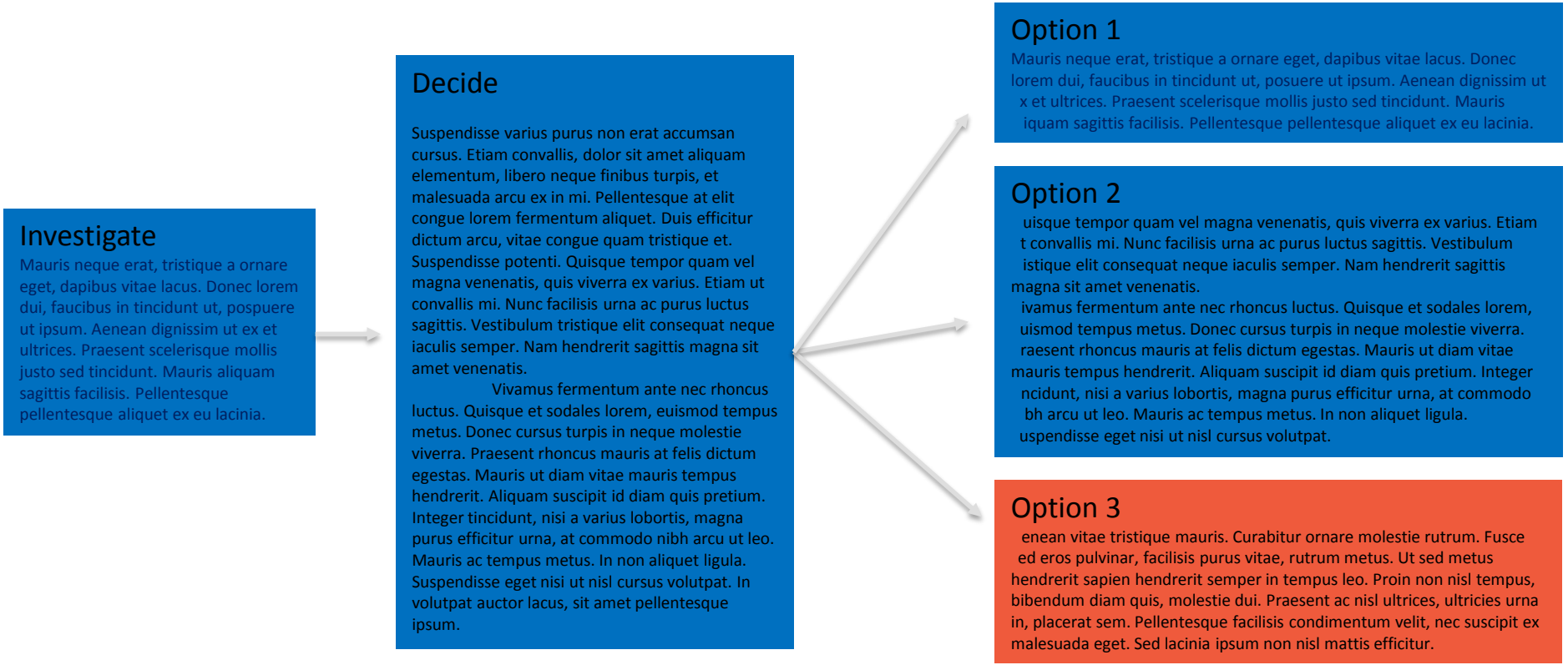
Accessible maps

- ColorBrewer – color advice for cartography
- http://colorbrewer2.org



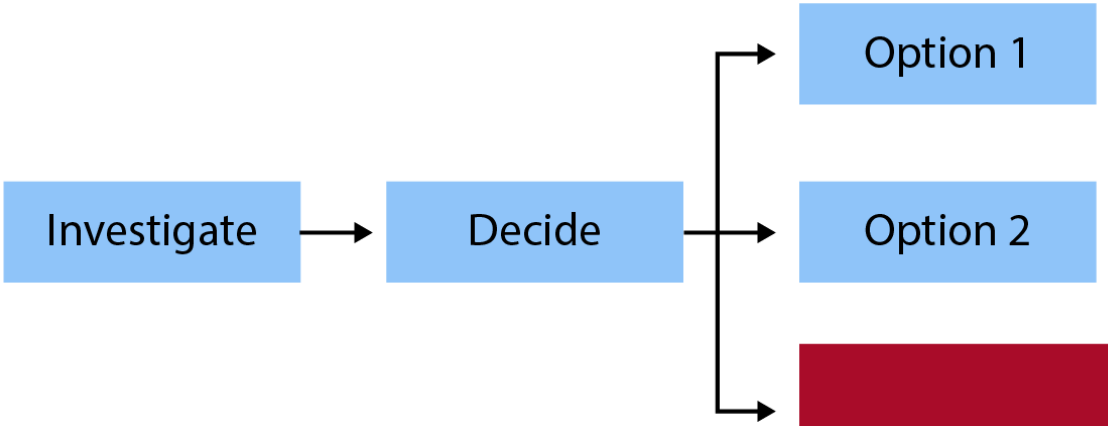
Source: colorbrewer2.org

Font size and sufficient visual contrast



Source: CTL

Possible solution – 2



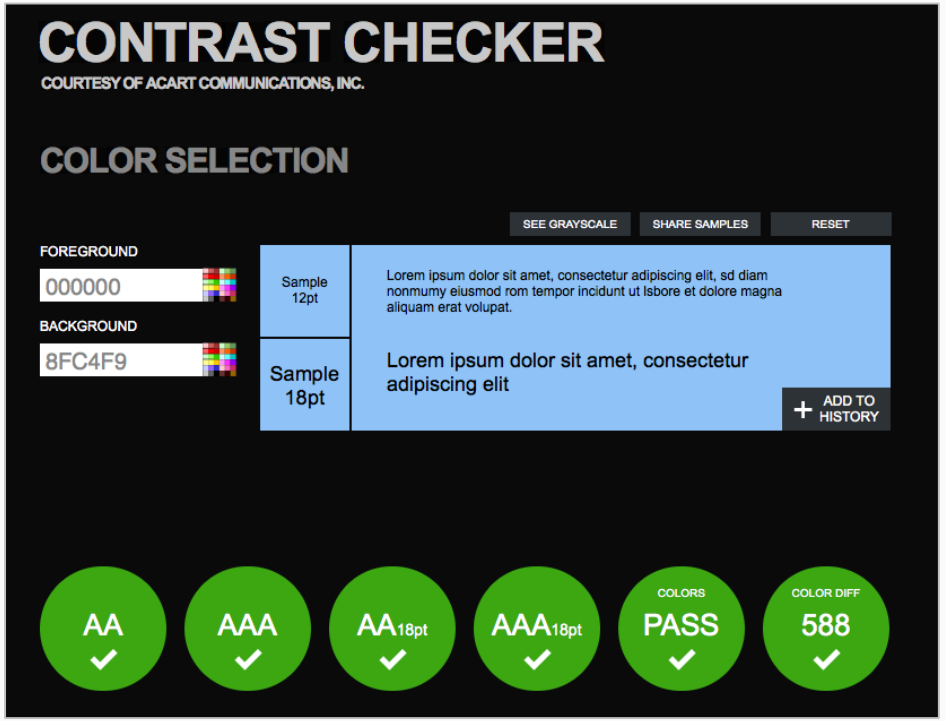
Option 3

Aenean vitae tristique mauris. Curabitur ornare molestie rutrum. Fusce sed eros pulvinar, facilisis purus vitae, rutrum metus. Ut sed metus hendrerit sapien hendrerit semper in tempus leo. Proin non nisl tempus, bibendum diam quis, molestie dui. Praesent ac nisl ultrices, ultricies urna in, placerat sem. Pellentesque facilisis condimentum velit, nec suscipit ex malesuada eget. Sed lacinia ipsum non nisl mattis efficitur.

Source: CTL

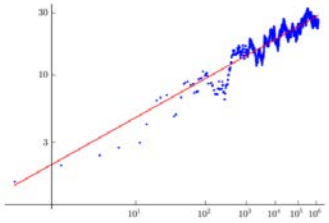
Contrast Checker

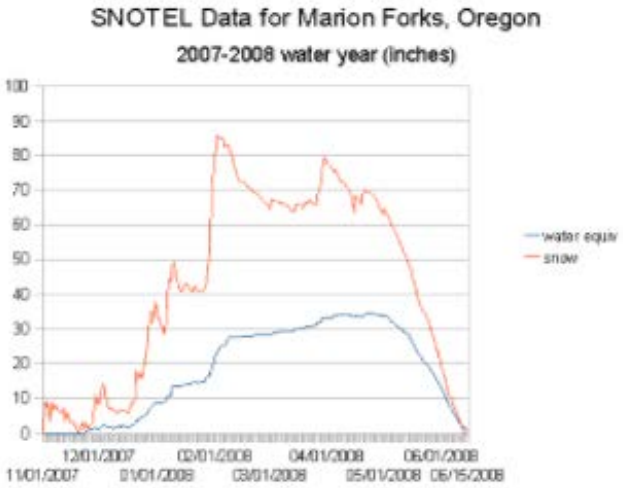
- http://contrastchecker.com

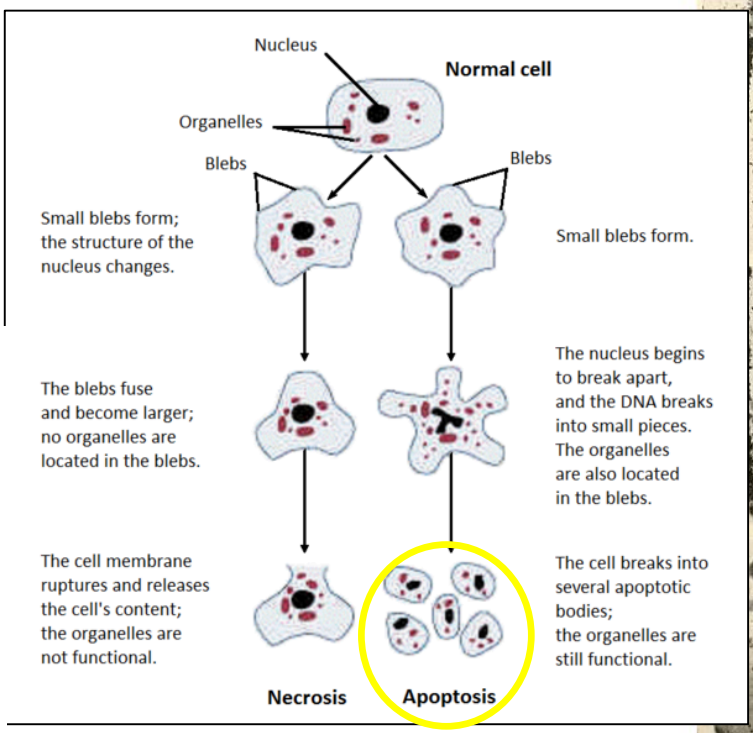


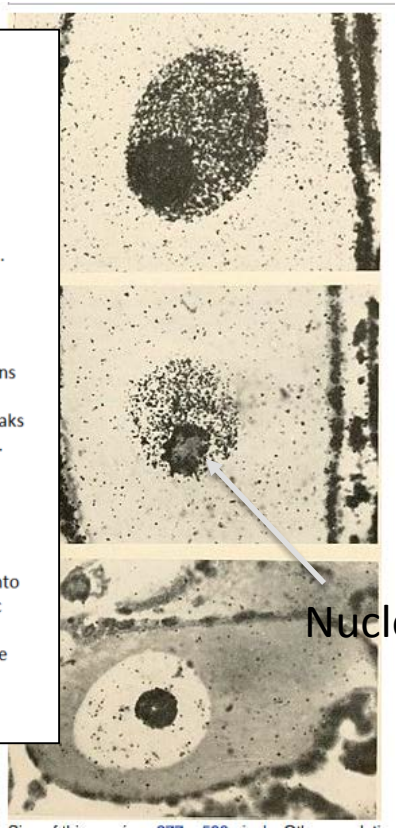
Source: contrastchecker.com

Too busy

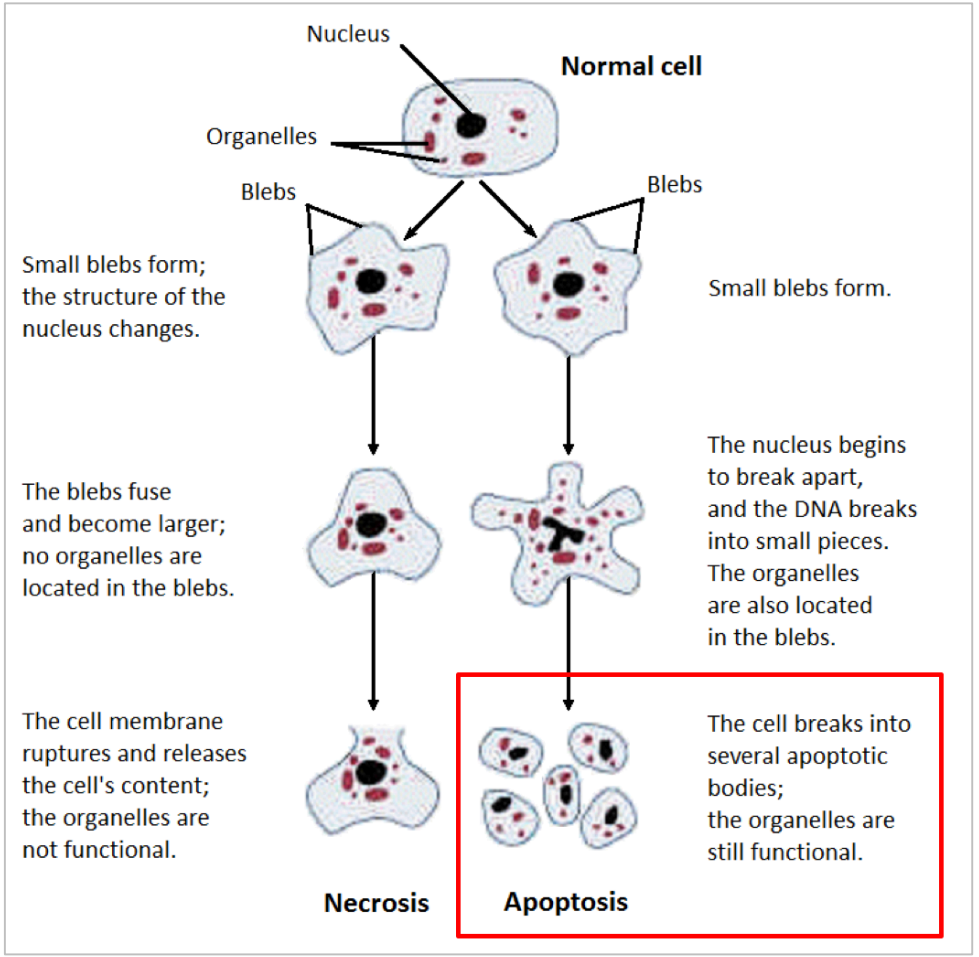



SNOTEL Data for Marion Forks, Oregon
2007-2008 water year (inches)
100
90
80
70
60
50
40
30
20
10
0
12/01/2007
02/01/2008
04/01/2008
06/01/2008
11/01/2007
01/01/2008
03/01/2008
05/01/2008
06/15/2008
water equiv
snow


Nucleus
Normal cell
Organelles
Blebs
Blebs
Small blebs form; the structure of the nucleus changes.
Small blebs form.
The blebs fuse and become larger; no organelles are located in the blebs.
The nucleus begins to break apart, and the DNA breaks into small pieces. The organelles are also located in the blebs.
The cell membrane ruptures and releases the cell's content; the organelles are not functional.
The cell breaks into several apoptotic bodies; the organelles are still functional.
Necrosis
Apoptosis

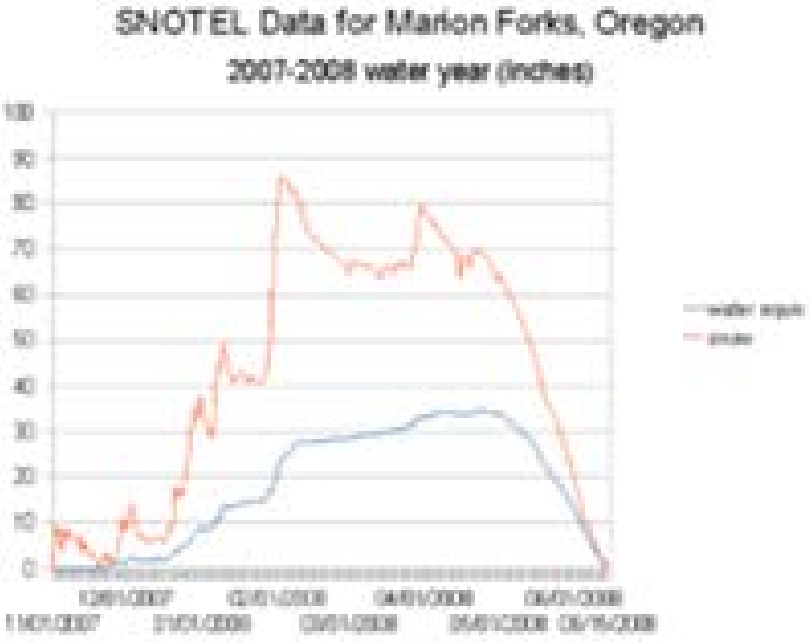

Nucleus

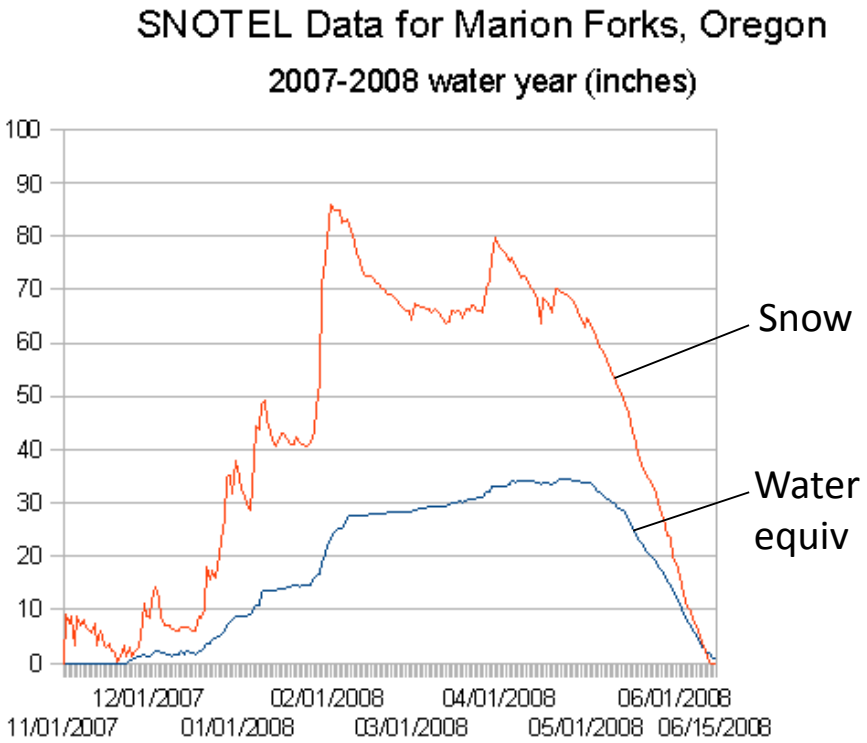
Split images onto different slides



Source: Wikimedia Commons, *Structural changes of cells undergoing necrosis or apoptosis*, NIAAA, Public Domain.

Fuzzy images and small screenshots

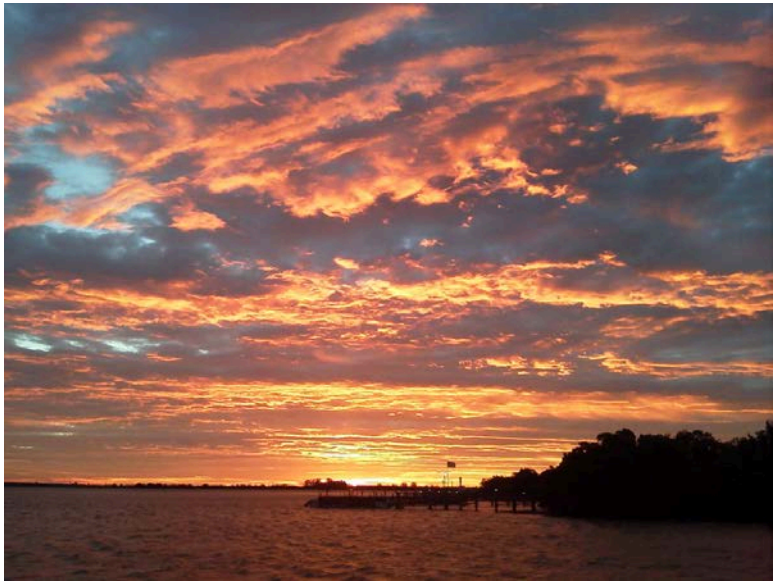




Source: Wikimedia Commons, EncMstr, CC BY-SA 3.0.

Text as image – do not screenshot DOI

Avoid clipart and meaningless images



Sources: (left) Wikimedia Commons, Benjiramosv, CC BY-SA 3.0 (right) Wikimedia Commons, Mmacbeth, Public domain.

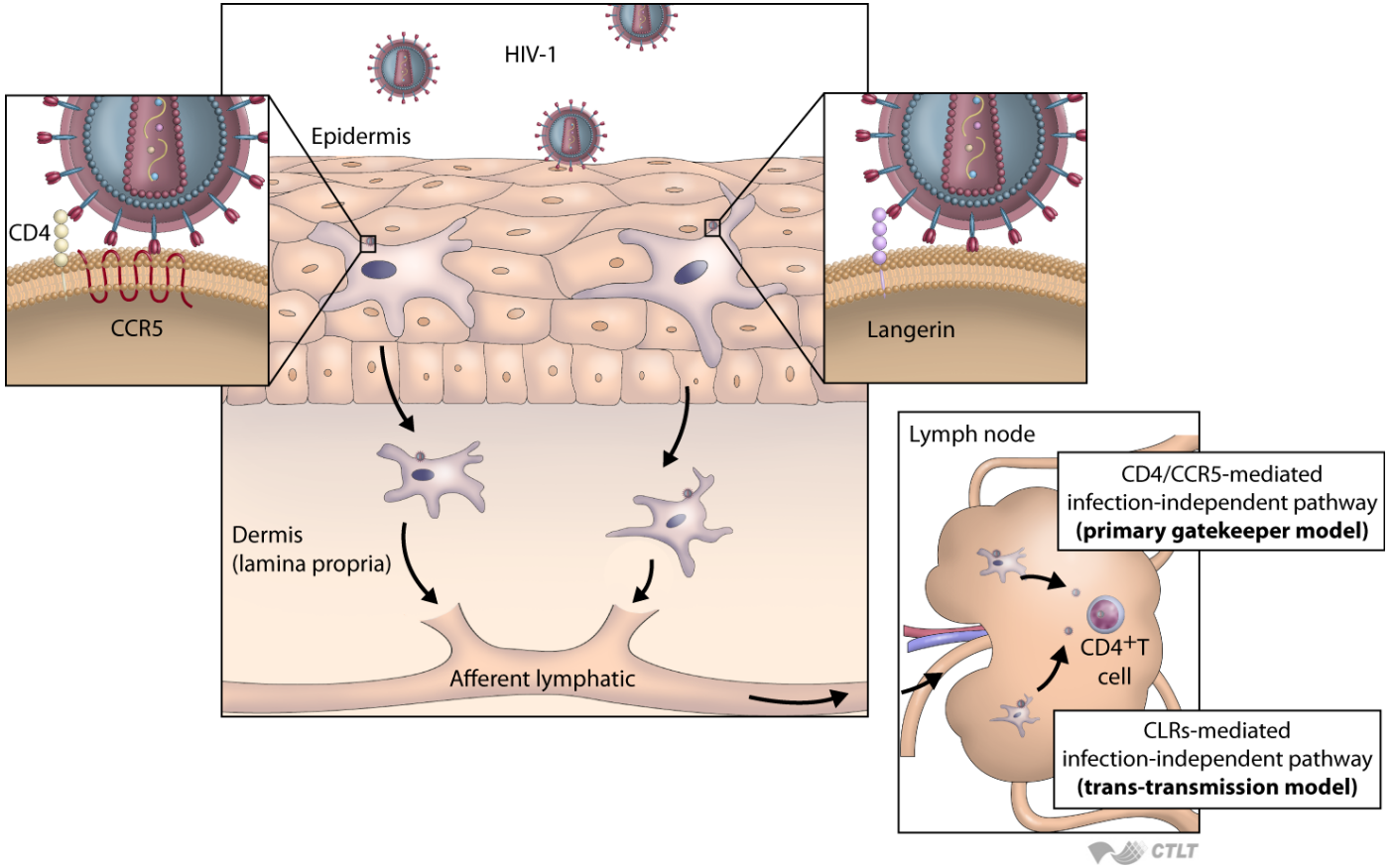
Meaningful photos. Consider diversity – 1

Sources: (top) GraphicStock, (bottom images) CDC, PHIL, James Gathany, Public domain.

Meaningful photos. Consider diversity – 2

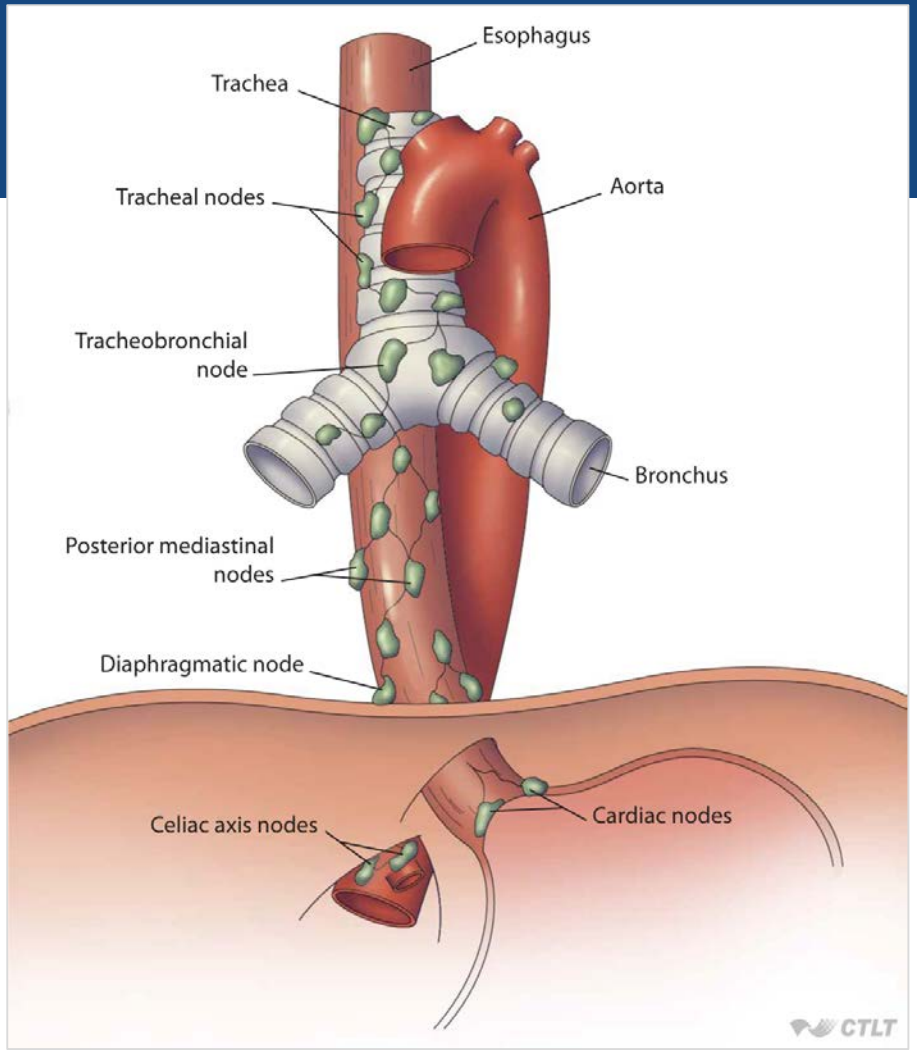
Sources: CDC, PHIL, Amanda Mills, Public domain.

Complex process



Source: CTL

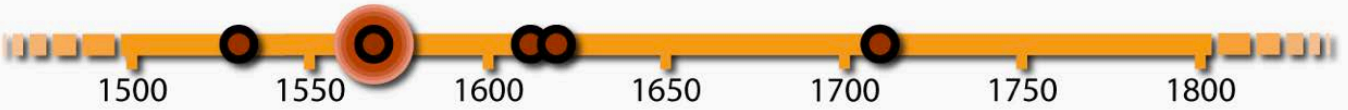
Medical illustration



Source: CTL

Visual timeline

- 1530—Europeans begin cultivation in Santo Domingo
- 1556-59—Introduced in France, Spain, Portugal, and Japan



CTLT

Source: CTL

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Finding open source images

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Creative commons license

- https://creativecommons.org
- Search by license (google image search, https://www.flickr.com, etc.)
- Go to original page to download full resolution file, and get original source and licensing information

Creative commons – Attribution

- Title, Author, Source, License
- Or, at least, author and license

https://wiki.creativecommons.org/wiki/Best_practices_for_attribution

Government websites

- https://phil.cdc.gov
- https://search.usa.gov
- Can also search government images through sites like flickr and google image search
- Be aware that not all images on a government site are copyright free. Try to use image banks instead of screenshots.

Free creative sites

- https://morguefile.com
- https://pixabay.com
  - Search ex.: Illustration, heart disease
- Keep in mind that these may have different licensing agreements than Creative Commons.
- Always cite your sources, even if they are in the Public Domain

Using someone's likeness

- "Other rights such as **publicity, privacy, or moral rights** may limit how you use the material."
- Creative Commons photo of child with pneumonia

https://creativecommons.org/licenses/by-nc-sa/2.0/
Photo source: Heart, Road Fun, flickr.com, CC BY-NC-ND 2.0

Photoshare

- http://www.photoshare.org
- Johns Hopkins photo collection for nonprofit and educational use
- Documentary use – images must be used ”in a context that fairly represents the real situation, subject identity, and physical location of the image”.

http://www.photoshare.org/about-photoshare

JHSPH CTL Teaching Toolkit Resource Compilation

- http://tinyurl.com/jhsphtoolkit/
  - Image Sources

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Legal concerns

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Understanding Legal Concerns

- "Copyright on Campus"
- Not everything is Fair Use
- Getting permission (Stanford University)

Fair use

1. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;

2. the nature of the copyrighted work;

3. the amount and substantiality of the portion used in relation to the copyrighted work as a whole;

4. the effect of the use upon the potential market for or value of the copyrighted work

http://guides.library.jhu.edu/c.php?g=202560&p=1335304

Fair Use: Summary

- In summary – “it is best to attempt to identify rights-holders, to analyze your intended use and its potential impact on a rights-holder, and to seek permissions as needed for any work **that is not unquestionably in the public domain**.” (my emphasis)

http://guides.library.jhu.edu/c.php?g=202560&p=1335304

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Best Practices (the “How”)

Accessibility at JHU

- Complements – does not replace – Support Services' accommodations and modifications

- Accessibility suggested standards *(e-accessibility)* and practices
  - WCAG 2.0 (2008) AA Guidelines: Perceivable, Operable, Understandable, and Robust
  - Universal Design for Instruction & Universal Design for Learning

- Design learning environments, employ communication, & author activities considering:
  - sensory, physical, cognition and neurological experiences
  - how the content translates to AT such as screen readers, speech recognition software, and alternative input devices (e.g., head pointers, puff switches)
  - *all* learners – thinking about a social, not medical, model
  - sustainability

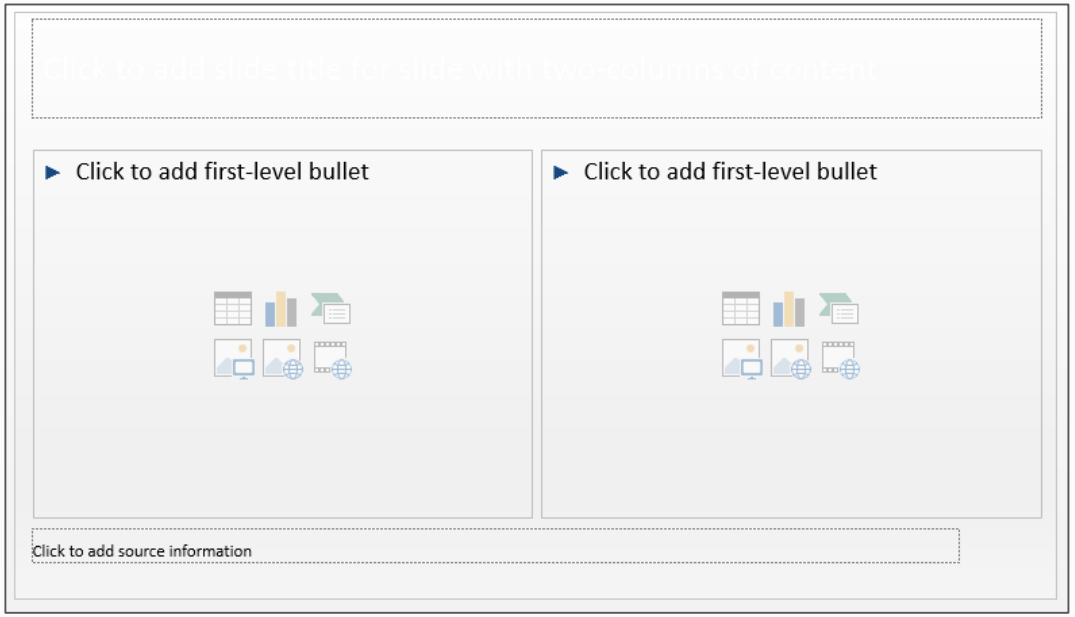
https://www.w3.org/WAI/intro/wcag

Editing with Accessibility in Mind

- Consider:
  - Document Properties (meta data)
  - **Structure** (The way the parts of a document are organized in relation to each other)
  - Navigation Aids (page/slide numbers, slide titles, table of contents)
  - Reading Order
  - **Text Alternatives** to media
  - **Color and Font attributes**
  - Data Elements

Best Practices – Microsoft Office: Structure

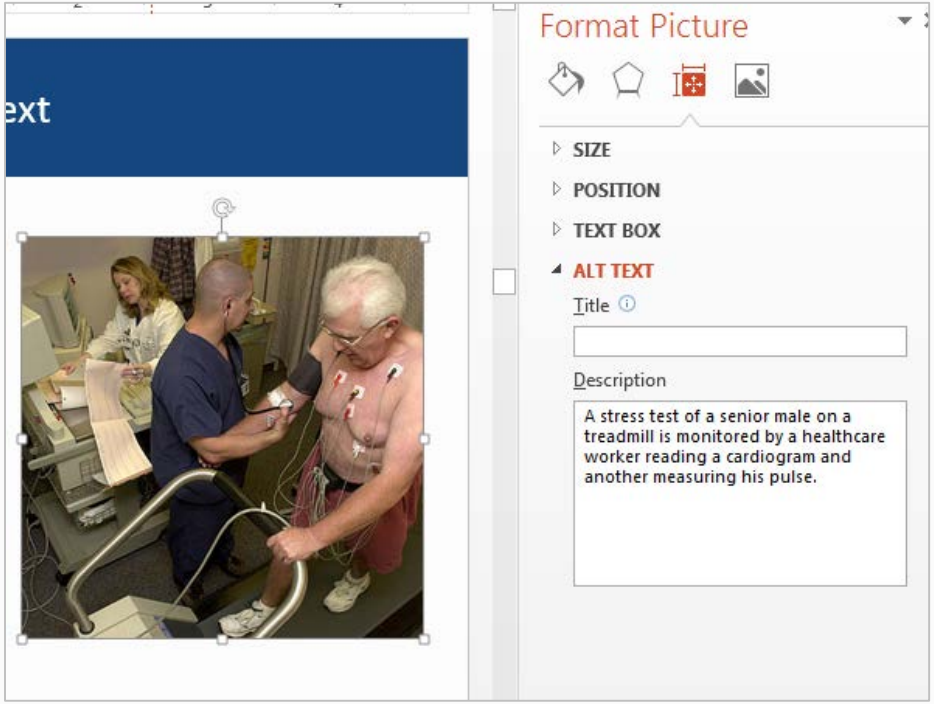
- Microsoft PowerPoint Structure
  - Use templates and only rely on a Slide Master layout's **placeholders**



Best Practices – Format Picture: Alternative Text

- Simple, succinct text to describe any non-decorative image or summarize any complex element (table, chart, embedded multimedia, etc.)

- Alt text should convey the meaning of the object
  - Images should avoid including text if possible; if not, mention it in alt text
  - Do not state the obvious
  - Use appropriate language



By Blue0ctane at English Wikipedia - Transferred from en.wikipedia to Commons., Public Domain, https://commons.wikimedia.org/w/index.php?curid=3203594

Example: Alternative Text

- Alternative text (alt text) is required when the image is contributing information to the reader. The alt text should relay the same content & function as the image in CONTEXT.

- The alt text for this image might be:
  - *“” – Null (empty), if it is purely decorative*
  - *“Microscope close-up”*
  - *“Close-up of compound microscope objective lenses and mechanical stage”*

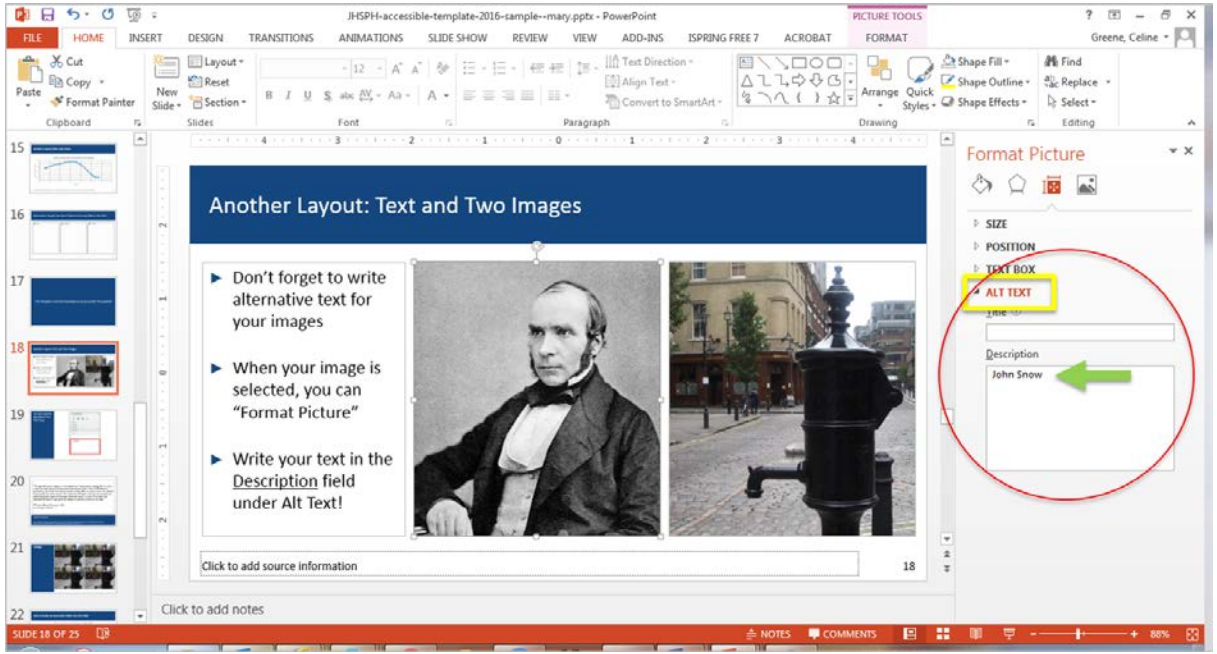
Microscope image: CC0 Public Domain, courtesy https://pixabay.com/en/microscope-slide-research-close-up-275984/

Alternative Text, cont.

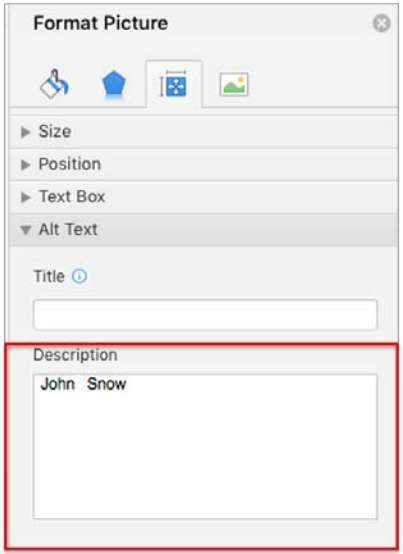
- Alt text should use appropriate language and level of detail for the audience
- Alt text is not needed for decorative images and is not read for background images
- Alt text for any background images in a PowerPoint template (Slide Master View) should be repeated in the Normal view

http://www.w3.org/TR/wcag2ict

Where to Enter Alternative Text for Images



Format Picture: PowerPoint 2013 (Windows)



Format Picture (Mac)

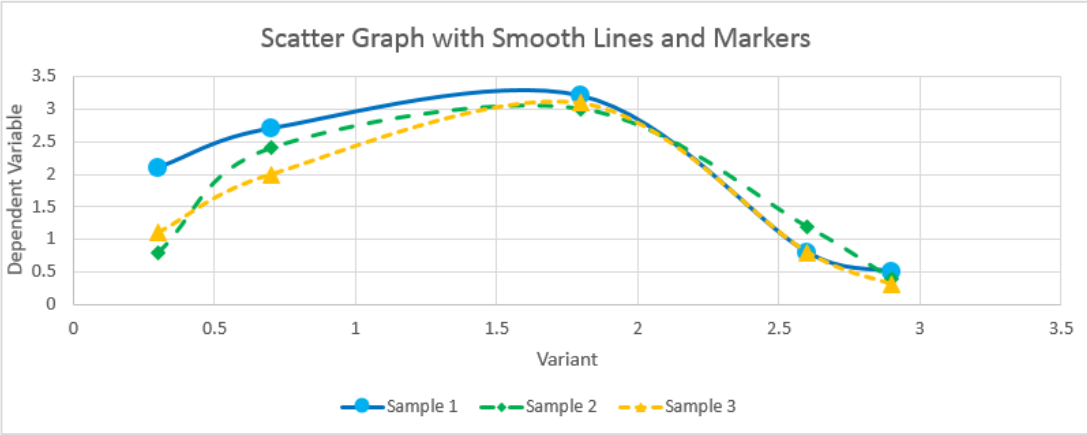
More Alternative Text Examples

- Keep in mind that Alt text will be read after a prompt that flags there is an object
  - Do not state the obvious
  - Use appropriate language

Image	Poor Alt Text	Better Alt Text
http://tinyurl.com/zdympzq	Image of road construction workers	Three construction workers in safety vests and hardhats operate large drill attached to truck
http://tinyurl.com/jyx43gg	An senior citizen is pictured on a treadmill	A stress test of a senior male on a treadmill is monitored by a healthcare worker reading a cardiogram and another measuring his pulse
http://tinyurl.com/jjdzgsa	A multicolored global map shows age dependency ratio	A world map is color-coded with an accompanying legend showing age dependency ratio by percentage. Details are provided in lecture audio and transcript.

Best Practices – All Documents: Color

- Do not use color alone to convey meaning
  - Alternatives: shapes, line types, emphasis (underline, bold, italics), etc.
- The contrast (light to dark) of objects next to or overlaying each other must be sufficient
  - Text over background images
  - Text inside a table with cell shading
  - Color-coded maps



Heading 1	Heading 2
Item 1	Item 2
Item 3	Item 4

http://www.w3.org/TR/wcag2ict

Images Containing Text

- Avoid images of text except if the text in the graphic is essential to the information (including text that is part of a logo or part of a screenshot or graph).
- If an image contains only text, the text itself can usually be used as its alternative text.
- An image of text can also be used if it can be visually customizable (e.g. resizable and/or can be recolored). If using an image of text that conveys information (e.g., the graphic is not a logo nor simply decorative), it must have a **color contrast ratio of at least 4.5:1**.

https://www.w3.org/WAI/WCAG20/quickref/

All Documents: Data Elements

- Avoid using only images of a chart, graph, or table, especially if it needs a long descriptor (Perceivable, Understandable)
  - Original data sets (usually in a spreadsheet display) attached to a visual representation can be accessed by AT
- Include alt text for the object summarizing its content, especially if the object is complex

Best Practices – All Documents: Font Attributes

- Font should be clear and easy to read
- Font size should not go lower than 11 point for most fonts
- Font color needs to take contrast ratio into consideration (text to background)
- If text *must* be included as a part of an image (with the exception of logos), it must be clear so it retains quality when customized; e.g. resized by zoom level or filtered by color

http://www.w3.org/TR/wcag2ict

A Culture of Accessibility…

- Affords multiple learning styles and intelligences
- Affords productivity and efficiency
- Is “better for all”
- …. And is required