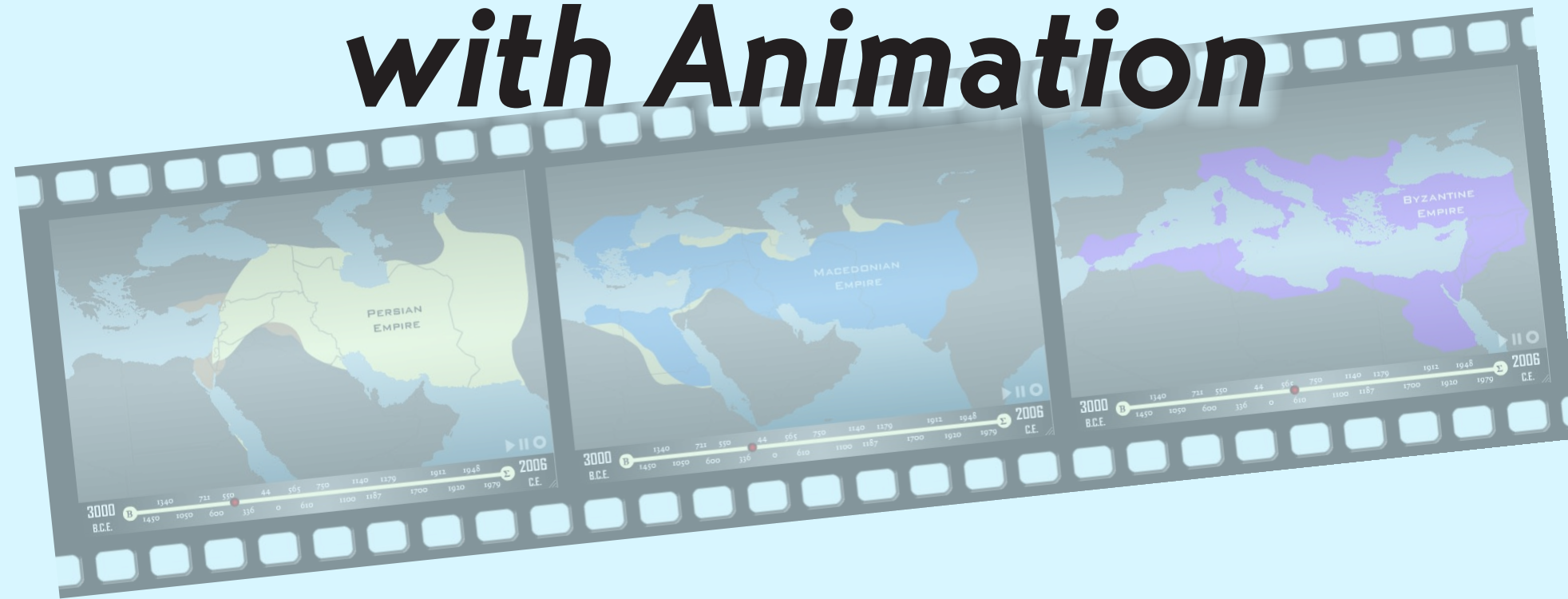


Enhancing Infographics & Diagrams with Animation



NOTE about examples in this PDF

All URLs are “hot links” to web pages (live as of June 2010).
Some will auto-play the animation, others you must start playing.
Some have sound.

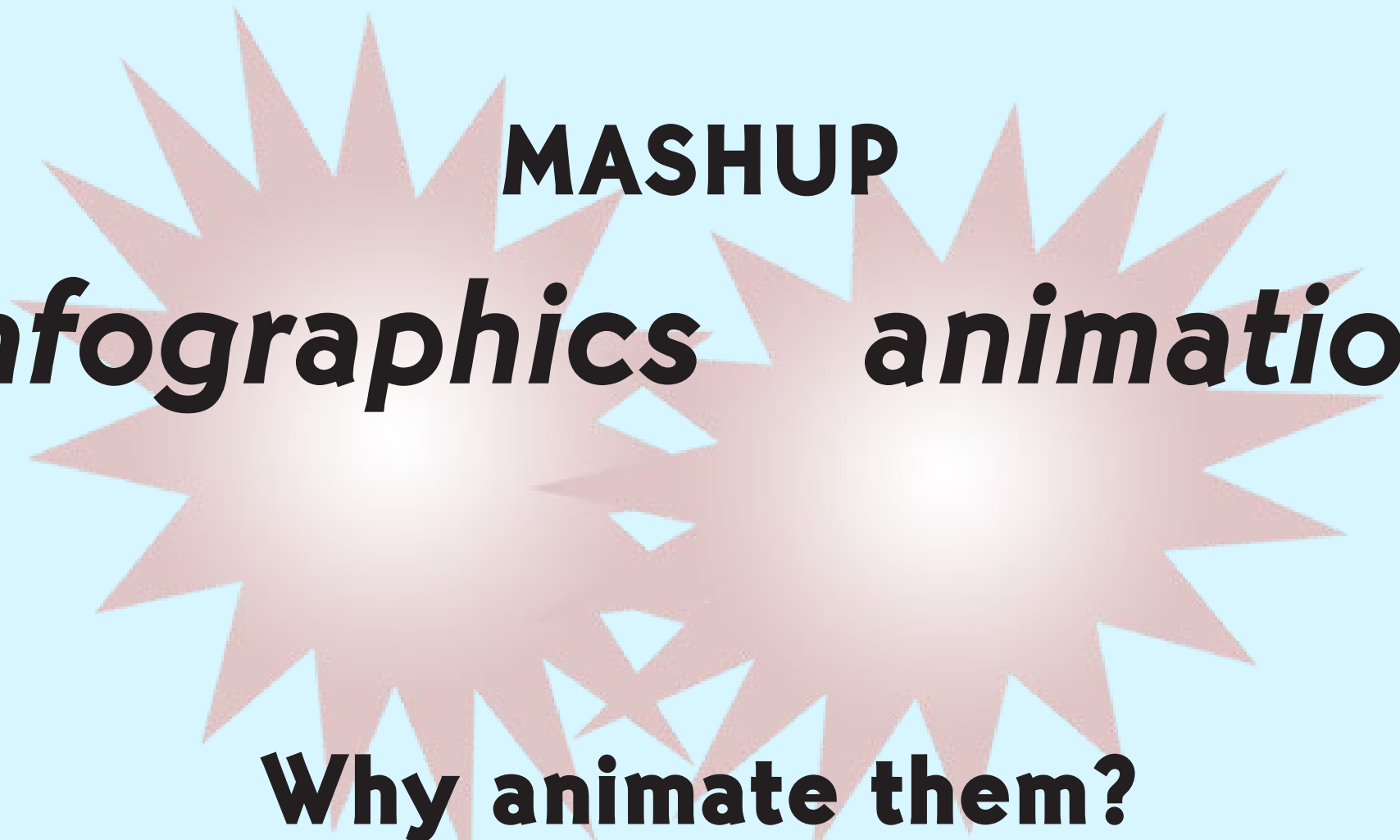
Nancy Wirsig McClure



(just me)

Portland, Oregon

- illustrations (including infographics & cartoons) •
 - web site design & construction •
- classroom teaching of Photoshop & Illustrator •



MASHUP
infographics *animation*

Why animate them?
information **BECOMES** experience

to increase
engagement • comprehension

DEFINITION

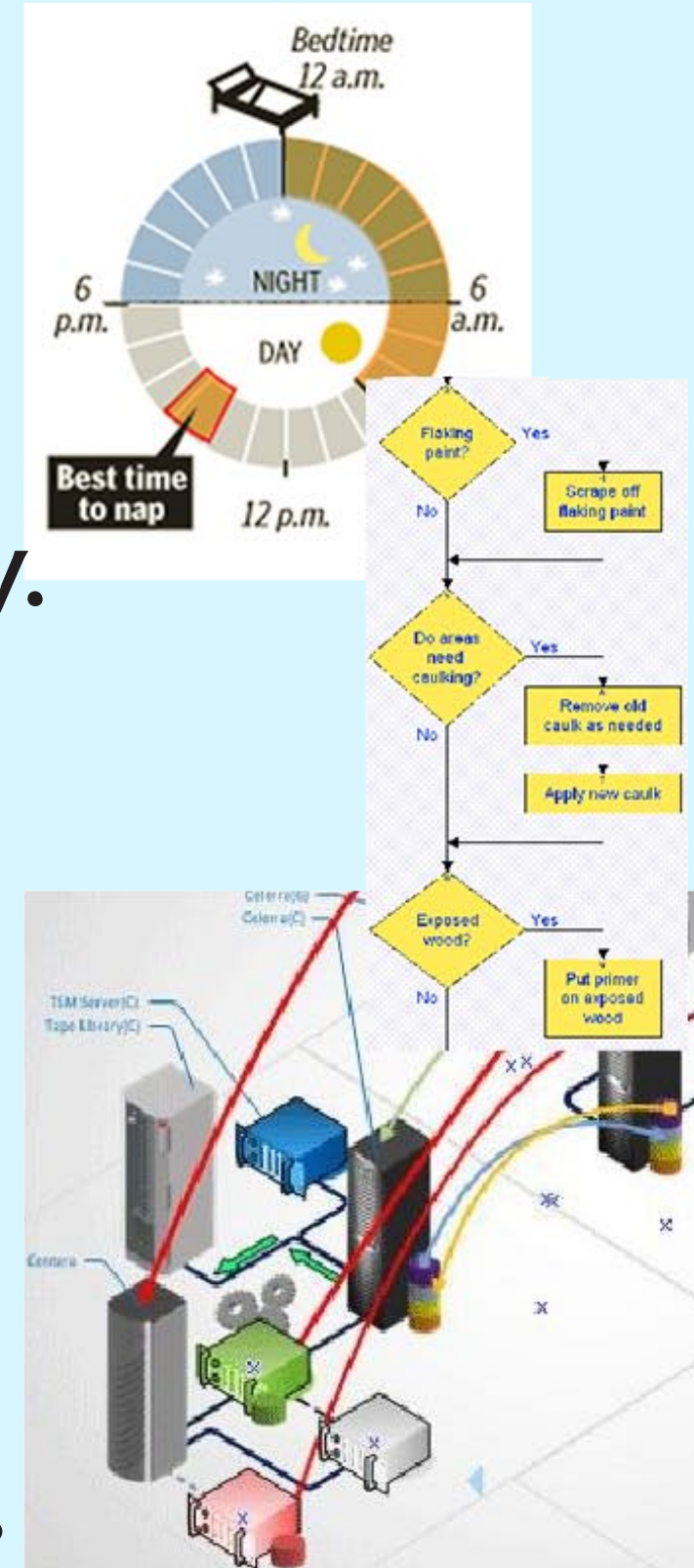
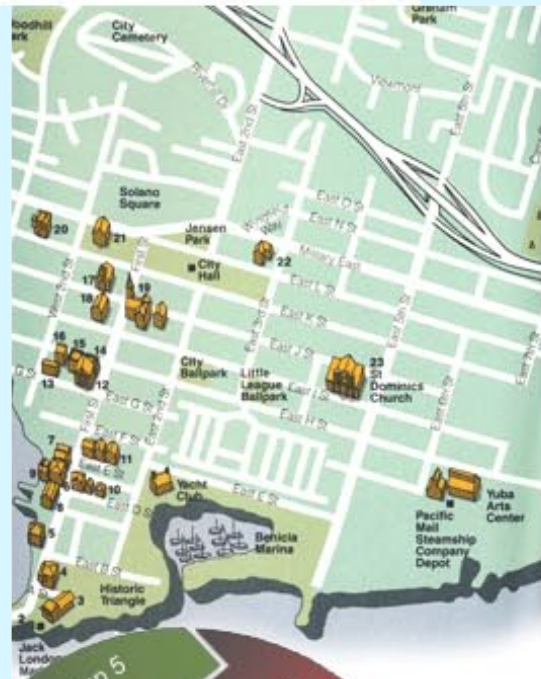
INFORMATION GRAPHICS

illustrations that communicate complex information quickly and clearly.

Infographics are explanations.

FOR INSTANCE

- charts • graphs •
- diagrams • narratives •
- maps • floorplans • cross-sections •



INFOGRAPHICS

DIFFERENT USES

EXPLORATORY
visualizing data
so viewer
can “play” with it
and analyze it

EXPLANATORY
showing information
and telling
a story about it
to the viewer

•

<http://barthood.news21.com/system>

DEFINITION

ANIMATION

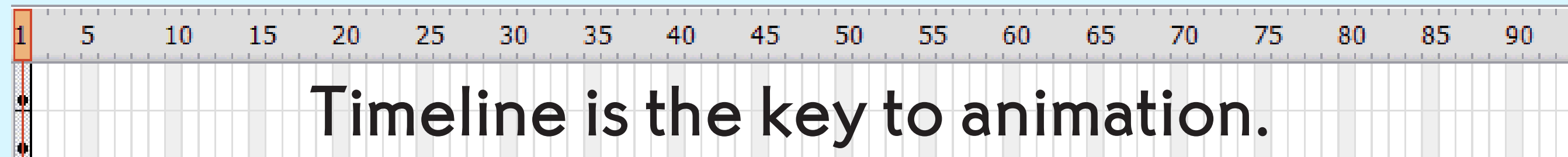
A graphic that changes over time

•

“Motion”—change in position or orientation

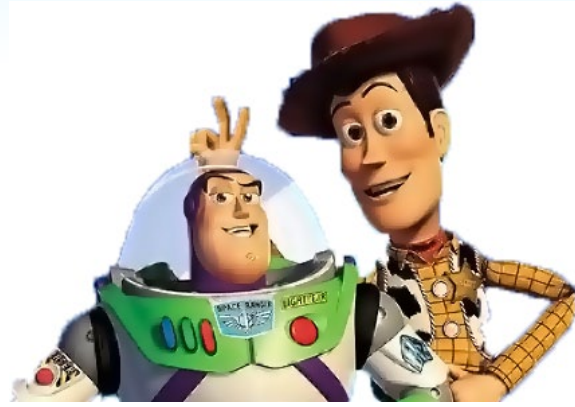
Zoom—change in scale

Change in color or detail



ANIMATION

For elearning, let's
EXCLUDE



Film

(entertainment)

•

Music videos

•

Banner ads



FX (special effects
including 3D realism)

•

TV-style motion graphics
(spinning logos”)



For today, let's also **exclude**:

Animated buttons • Animated page turns

PLANNING ANIMATED INFOGRAPHICS

So...

“Could that image be animated?”

Actually...

“Should it?”

**Would animating it
increase
comprehension and/or engagement?**

STOP!

ASK

“Should that image be animated?”

**ONLY
AFTER**

Planning a clear story to tell

•

Knowing how a combination of
graphics and text will enhance the story

•

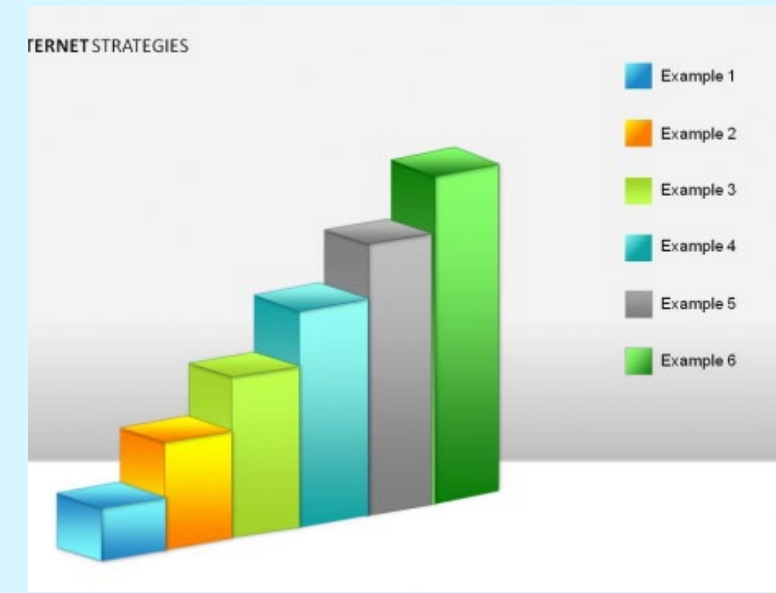
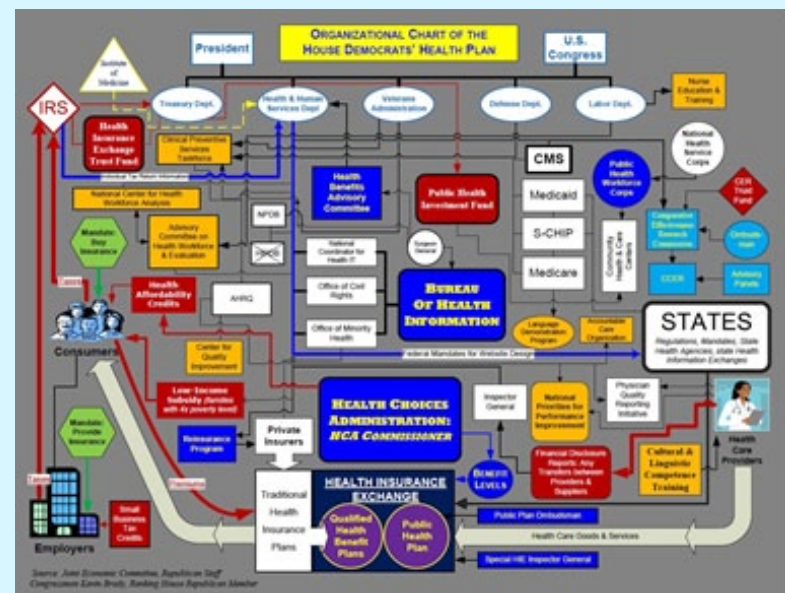
Thinking about Section 508 accessibility

GOOD INFOGRAPHICS

Avoid “chart junk” and maximize “data ink”
(see books by Edward Tufte)

Do not distort the data

EXAMPLES to avoid



**AVOID “ZOOMWARE”
(gratuitous animation)**

**USE ANIMATION
ONLY WHEN IT
HELPS COMPREHENSION**

BRAINSTORMING Part 1

What can you show with animation?

Show change over time

(A) <http://www.johnkyrk.com/evolution.swf> [drag ^ to reveal timeline]

(B) <http://www.mapsofwar.com/ind/imperial-history.html>

•

Demonstrate “how to”

(A) <http://www.youtube.com/watch?v=RyrDwsP6ozk>

(B) <http://www.wonderhowto.com/how-to-origami-a-jumping-frog-with-animated-demonstration-268868/>

•

Demonstrate “how it works”

<http://www.youtube.com/watch?v=MBUgeuU9FDU>

BRAINSTORMING Part 2

What can you show with animation?

Describe real-world events (narratives)

<http://www.nola.com/katrina/graphics/continuous.swf>

•

Describe abstract relationships

<http://explanation.com/example/abstract.html>

•

Emphasize comparisons

http://www.youtube.com/watch?v=nUDloN-_Hxs

BRAINSTORMING Part 3

What can you show with animation?

Visualize 3D: exploded or cutaway views

<http://www.youtube.com/watch?v=IZmsY2YvVsc>

•

Visualize 3D: fly through spaces

<http://www.youtube.com/watch?v=nayG1cf0NMw>

•

Overlay information

<http://explanation.com/example/overlay.html>

BRAINSTORMING Part 4

What can you show with animation?

Show behavior of objects that move

<http://explanation.com/example/object.html>

•

Visualize the unseeable

(A) <http://science.Howstuffworks.Com/nuclear-bomb3.Htm>

(B) <http://micro.magnet.fsu.edu/primer/java/scienceopticsu/powersof10>

•

Show transformation (morphing)

<http://www.youtube.com/watch?v=YY01onVFRRY>

BRAINSTORMING BEYOND BASICS: THINK NARRATIVE

Use time to tell the data's story
(think: offscreen presenter with laser pointer)

•

Tell an anecdote to illustrate or reinforce

•

Simulations, not quite real

•

Add snippets of animation to a factual voiceover

<http://www.youtube.com/watch?v=O86LSGXRH0&feature=related>

CHOOSING ANIMATION vs VIDEO

Similar choice to:
illustration vs photography

Illustration can

- simplify •
- focus attention •
- be less “ooky” (e.g. surgery) •
 - cost less! •
- offer a choice of 2D or 3D visuals •

CONSIDER USING “photoanimation”

<http://en.wikipedia.org/wiki/Photoanimation>

Tell the story with a series of photographs.

•

**A time-lapse of the same or similar scenes
(not just a slide show with “fade” transitions!)**

•

Engaging—the learner fills in the in-betweens

PITFALLS when animating—Part 1

AVOID...

Forced-pace reading of on-screen text

<http://www.youtube.com/watch?v=6ILQrUrEWe8>

•

Talking heads

<http://www.youtube.com/watch?v=w0zR4aoUU7M>

•

**Use humor sparingly:
don't suggest “toons” unintentionally**

PITFALLS when animating—Part 2

AVOID...

Distorting the data values that are time-based:

Consider <http://www.mapsofwar.com/ind/imperial-history.html>

**...did empires' boundaries grow smoothly
as shown, or in fits and starts?**

.

**Multiple animated objects on one page
set to auto-play**

<http://www.drennon.org/science/kepler.htm>

CREATING ANIMATED INFOGRAPHICS

USE TYPICAL PROCESS TO CREATE EACH ANIMATED ELEMENT (with certain steps emphasized)

- Establish requirements •
 - Plan •
 - Design and **Storyboard** •
- Create animation (or prototype, for large ones) •
 - **Test usefulness** with real learners •
 - Iterate (if needed) •

SOUND?

**Sound effects can support comprehension
(think: radio dramas)**

•

Add voiceover for complex narratives

<http://www.youtube.com/watch?v=-VPPGsYq6TE&feature=related>

•

Voiceover can help:

(A) avoid forced-pace reading of on-screen text

(B) offer multiple channels

USER CONTROLS: pacing

(author or learner in control of playback?)

•

Should the animation have
playback controls for the timeline?

(A) **VCR-style** (**Play** • **Pause** • **Rewind**)

(B) **Scrub** (especially useful for exploratory learners)

<http://regex.info/blog/2008-09-04/925>

•

Should it auto-play? Should it loop?

USER CONTROLS: stepping through

Should it have user control of the steps in a narrative?

(play animation,
then offer a **NEXT** button)

Yes—MANDATORY if text appears on screen
(allow for different reading speeds)

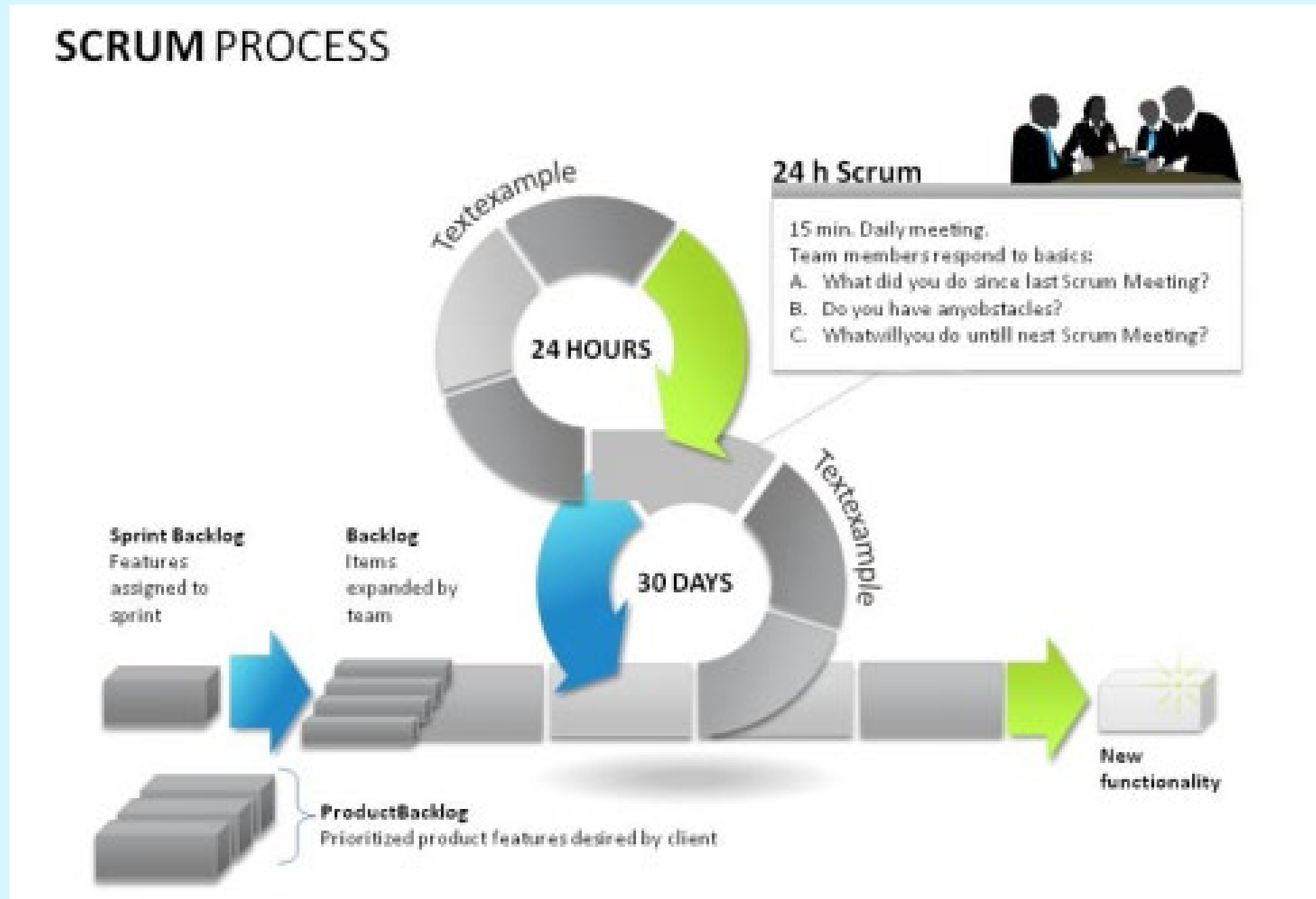
<http://www.nola.com/katrina/wide.ssf?/katrina/graphics/flashflood.swf>

ANIMATED INFOGRAPHICS

EXERCISE & RESOURCES

EXERCISE

Could animation help tell this story?



RESOURCES FOR “ANIMATION” THINKING

Add (exaggerated) life with

John Lasseter’s “Principles of Animation”

IDEAS: http://www.siggraph.org/education/materials/HyperGraph/animation/character_animation/principles/prin_trad_anim.htm

DEMOS: <http://www.naptime.com/flash/demos>

•

**Study the motion that surrounds you
(the real world and especially stylized motion in
TV, games, websites, software)**

RESOURCES FOR INFOGRAPHICS

Books by Edward Tufte

<http://www.edwardtufte.com>

(ALSO: many online discussions of his ideas)

•

Categorizing infographics

http://www.visual-literacy.org/periodic_table/periodic_table.html

(interactive)

•

Online Test: Your Graph/Chart Design “IQ”

<http://www.perceptualedge.com/files/GraphDesignIQ.html>

MORE RESOURCES FOR INFOGRAPHICS

Wikimedia: Visual samples of many types of infographics

http://commons.wikimedia.org/wiki/Specific_diagram_types

<http://commons.wikimedia.org/wiki/Timeline>

http://commons.wikimedia.org/wiki/Category:Maps_by_theme

http://commons.wikimedia.org/wiki/Category:Animated_maps

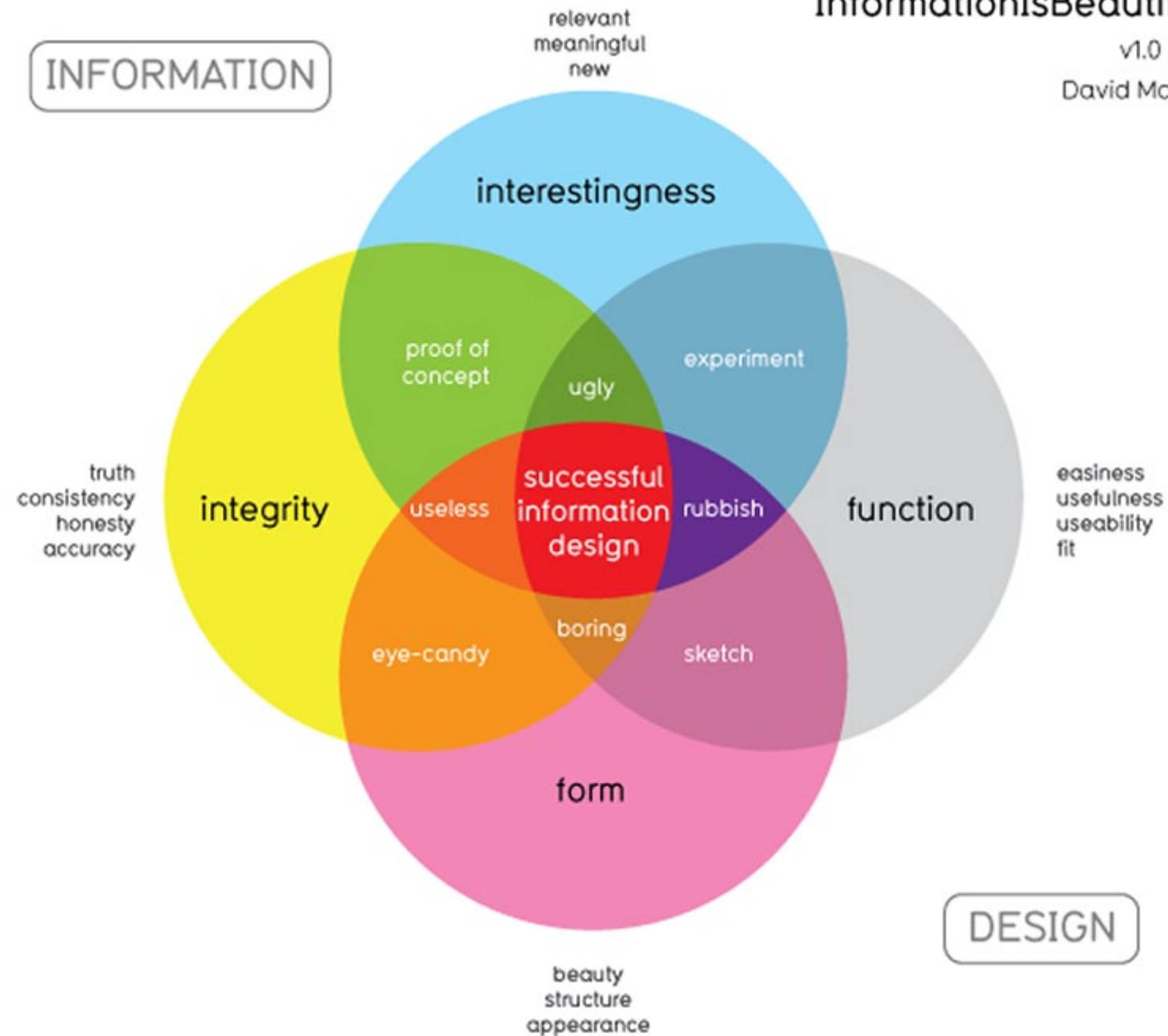
What Makes Good Information Design?

InformationIsBeautiful.net

v1.0 // Nov 09

David McCandless

INFORMATION



ANIMATED INFOGRAPHICS

explanation.com

for slides and links to examples
(and discussion)

Nancy Wirsig McClure

nancy@hand2mouse.com