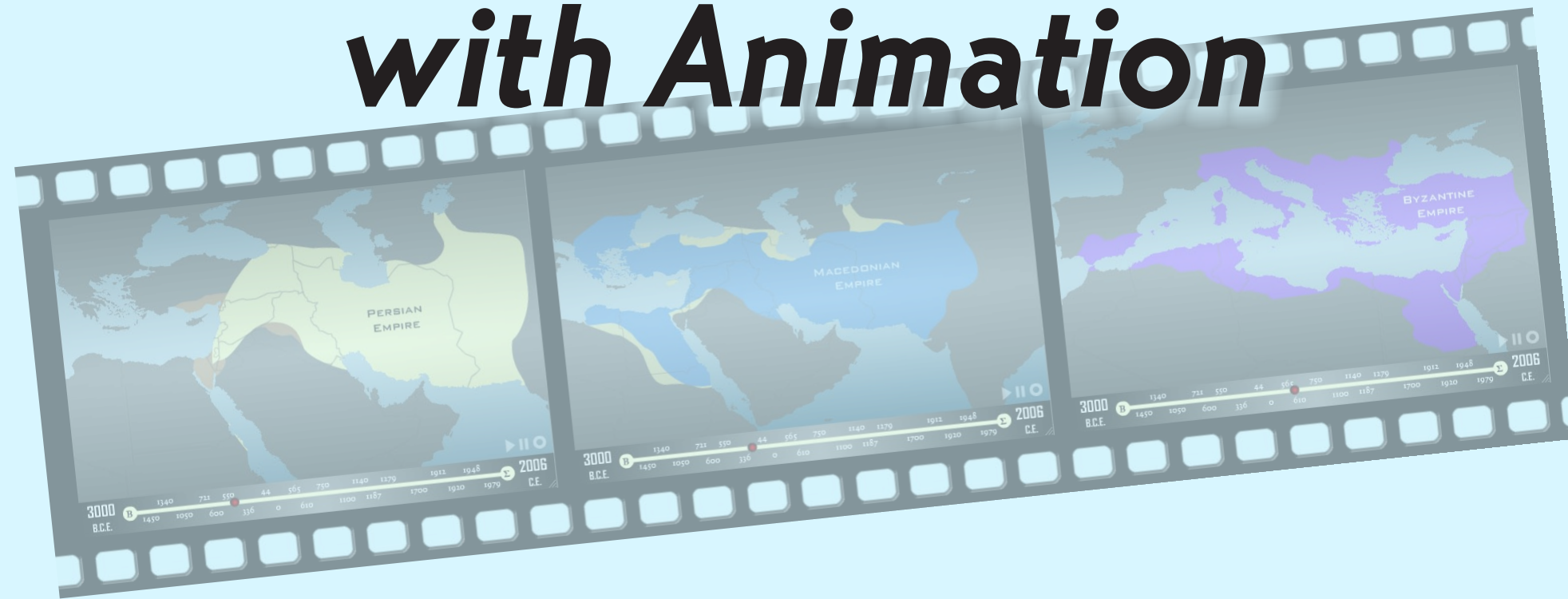


# *Enhancing Infographics & Diagrams with Animation*



## **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.

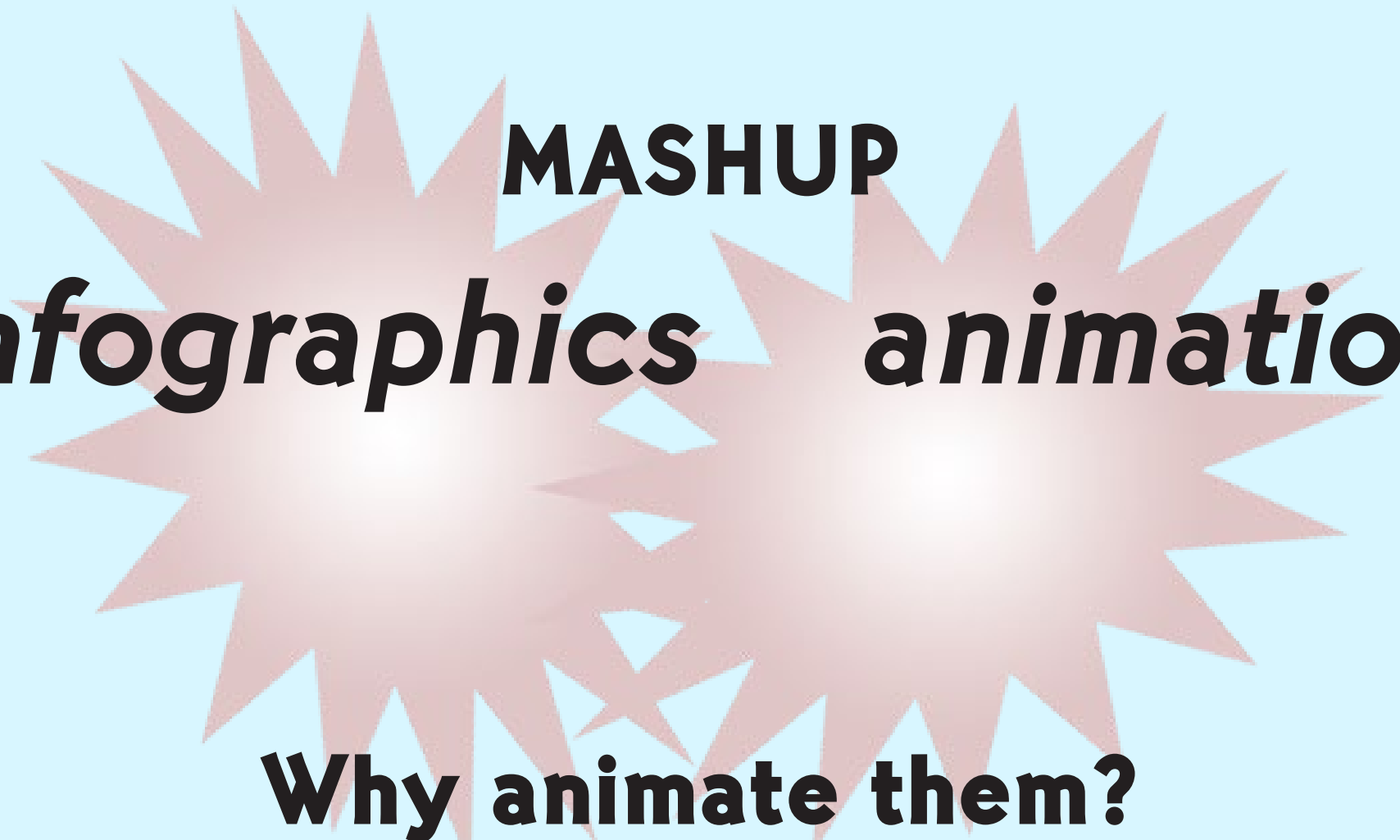
# ***Nancy Wirsig McClure***



(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

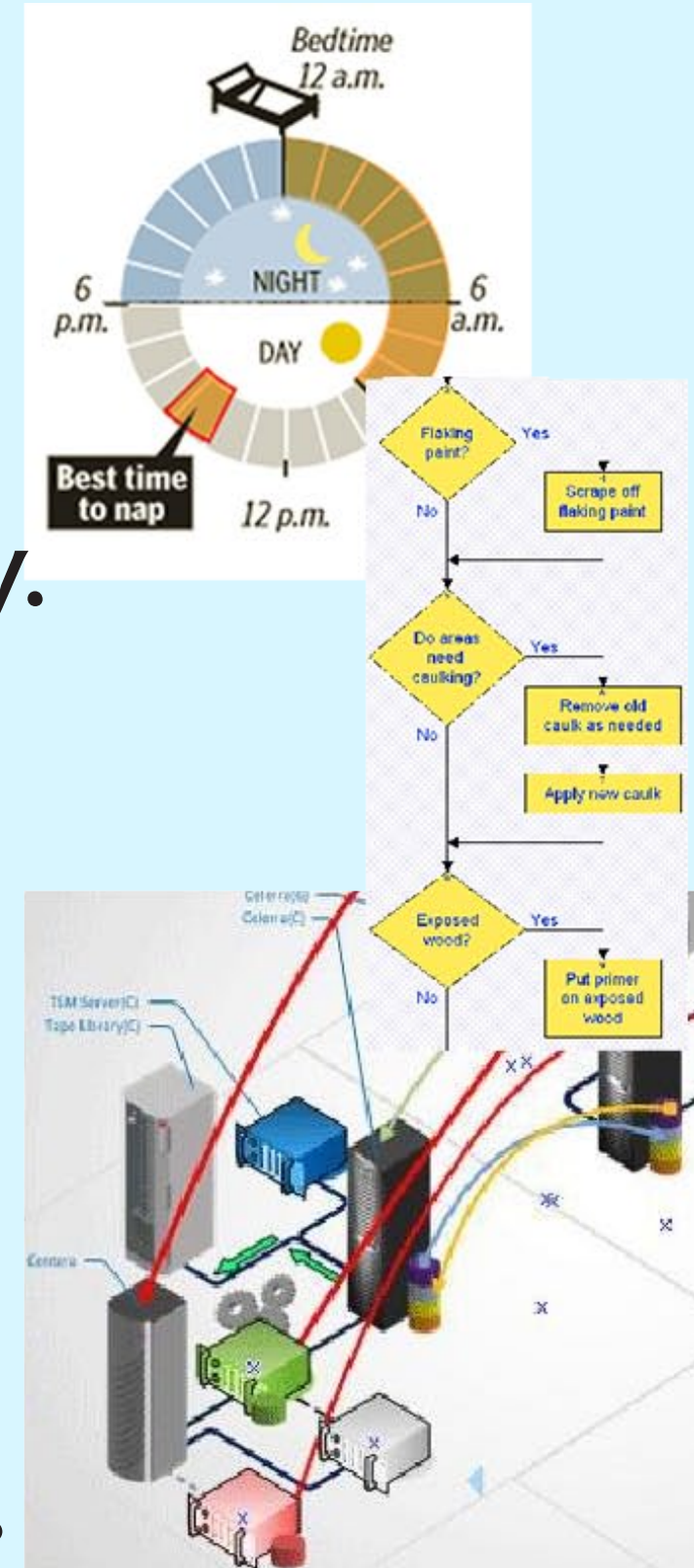
# INFORMATION GRAPHICS

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

•

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

### **EXPLANATORY**

showing information  
and telling  
a story about it  
to the viewer



DEFINITION

# ANIMATION

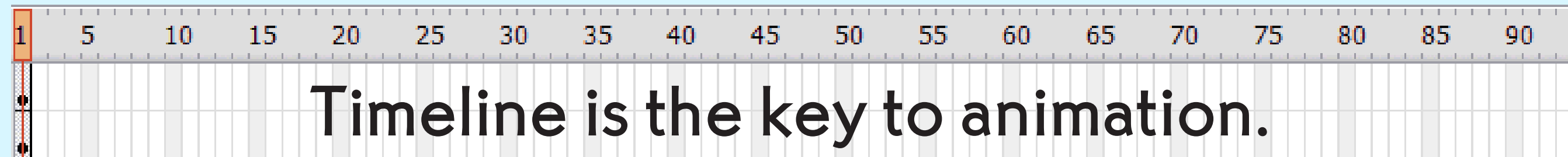
A graphic that changes over time

•

“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

•

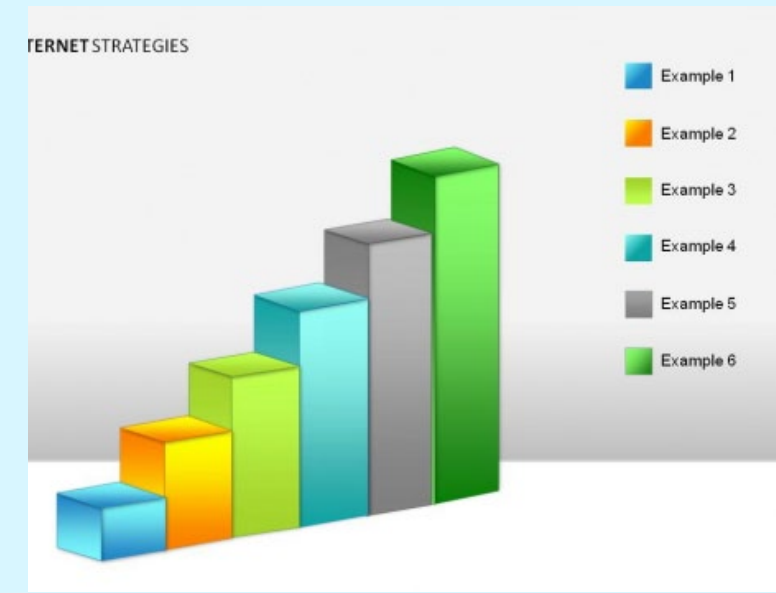
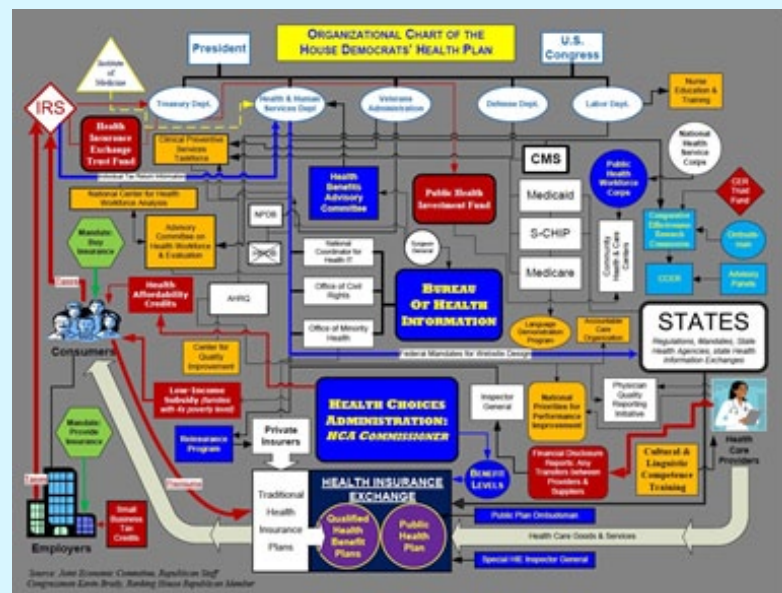
Thinking about Section 508 accessibility

# 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=nUDIoN-\\_Hxs](http://www.youtube.com/watch?v=nUDIoN-_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)

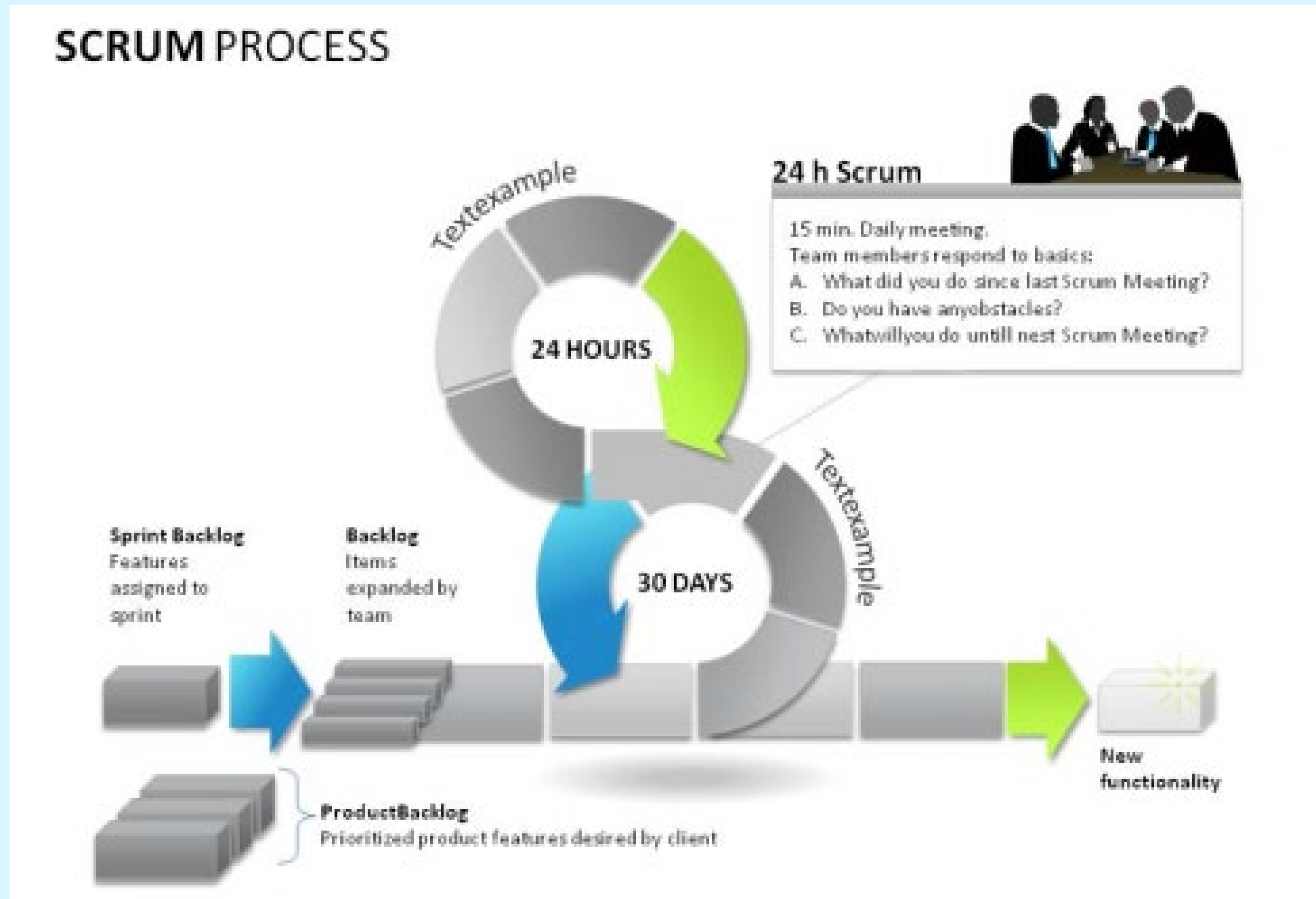
<http://www.nola.com/katrina/wide.ssf?/katrina/graphics/flashflood.swf>

# **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](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](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/Specific_diagram_types)

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

[http://commons.wikimedia.org/wiki/Category:Maps\\_by\\_theme](http://commons.wikimedia.org/wiki/Category:Maps_by_theme)

[http://commons.wikimedia.org/wiki/Category:Animated\\_maps](http://commons.wikimedia.org/wiki/Category:Animated_maps)



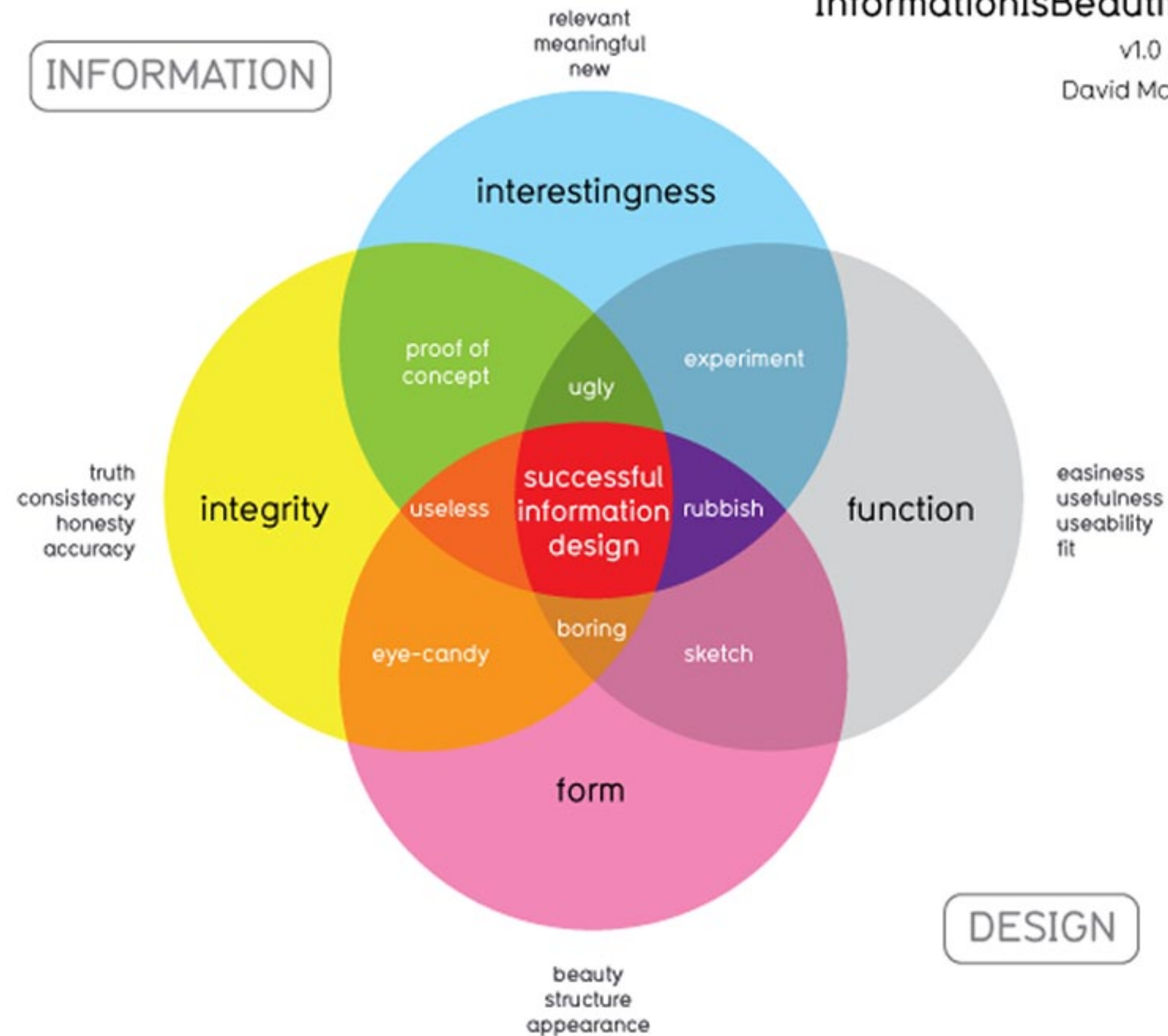
# What Makes Good Information Design?

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**