

# Lecture 18 – Building a Visual Narrative

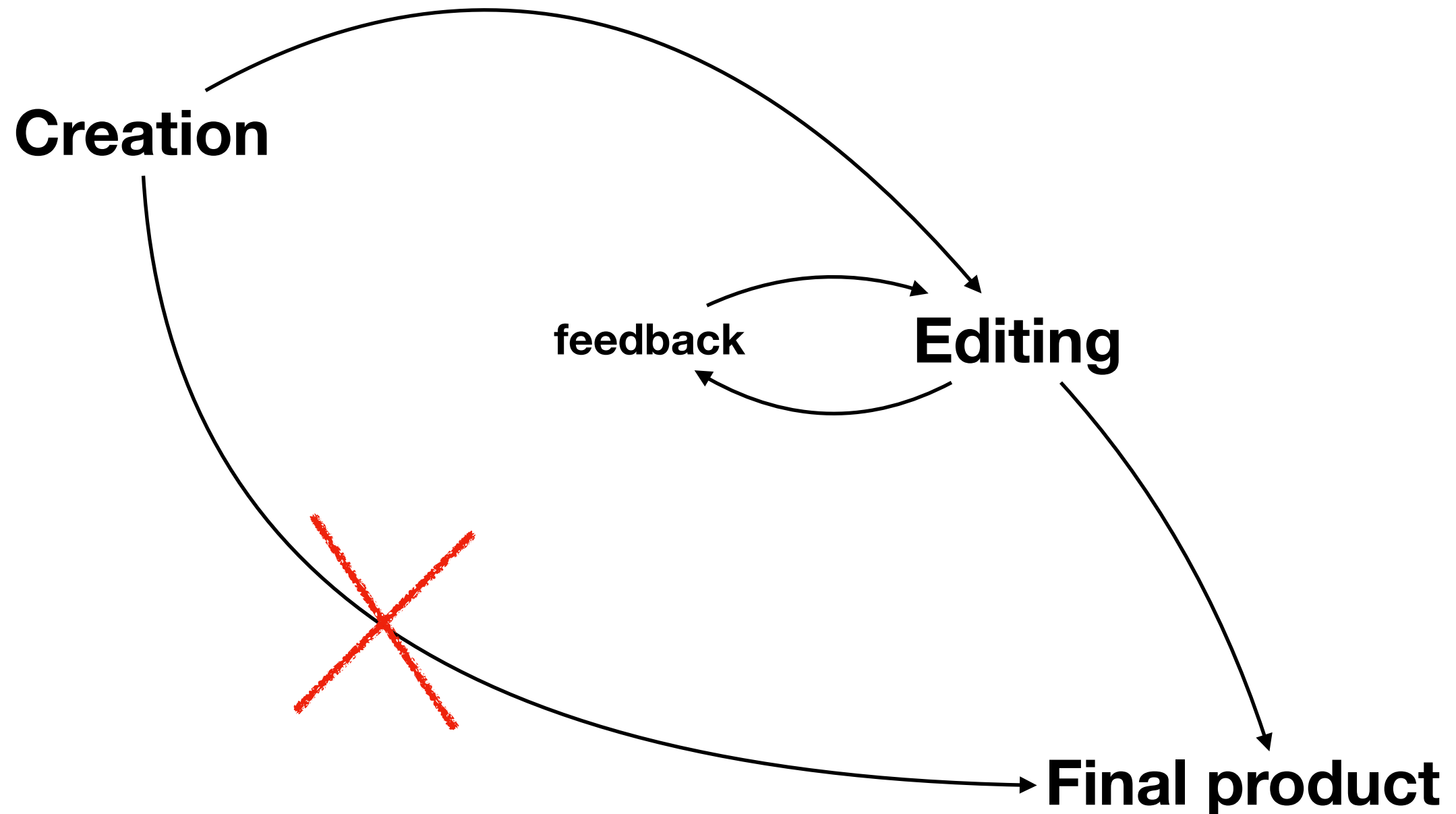
## Today's Learning Objectives:

1. Describe the process of creating a visual narrative.
2. List four critical considerations in creating a presentation.
3. Describe the ways in which you can reduce the cognitive load on your audience.
4. Create an ordered list for editing presentations.

# Considerations for Building a Presentation

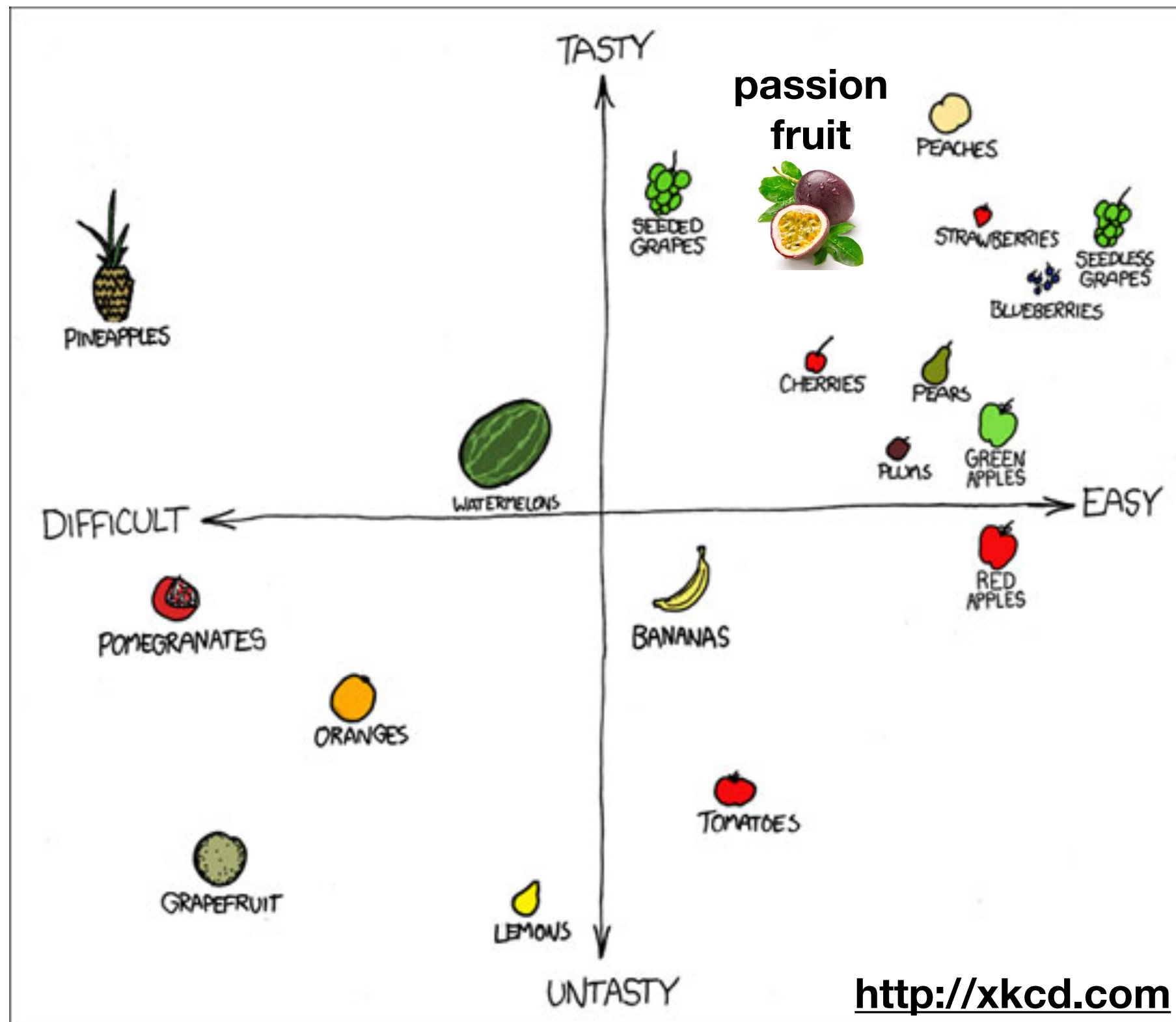
1. Take-away message
2. Background and knowledge of audience
3. Methods of communication available
4. Audience Attention

# Process of Building a Visual Narrative



**1. What is the take-away message?**

## 2. Background and Knowledge of Audience

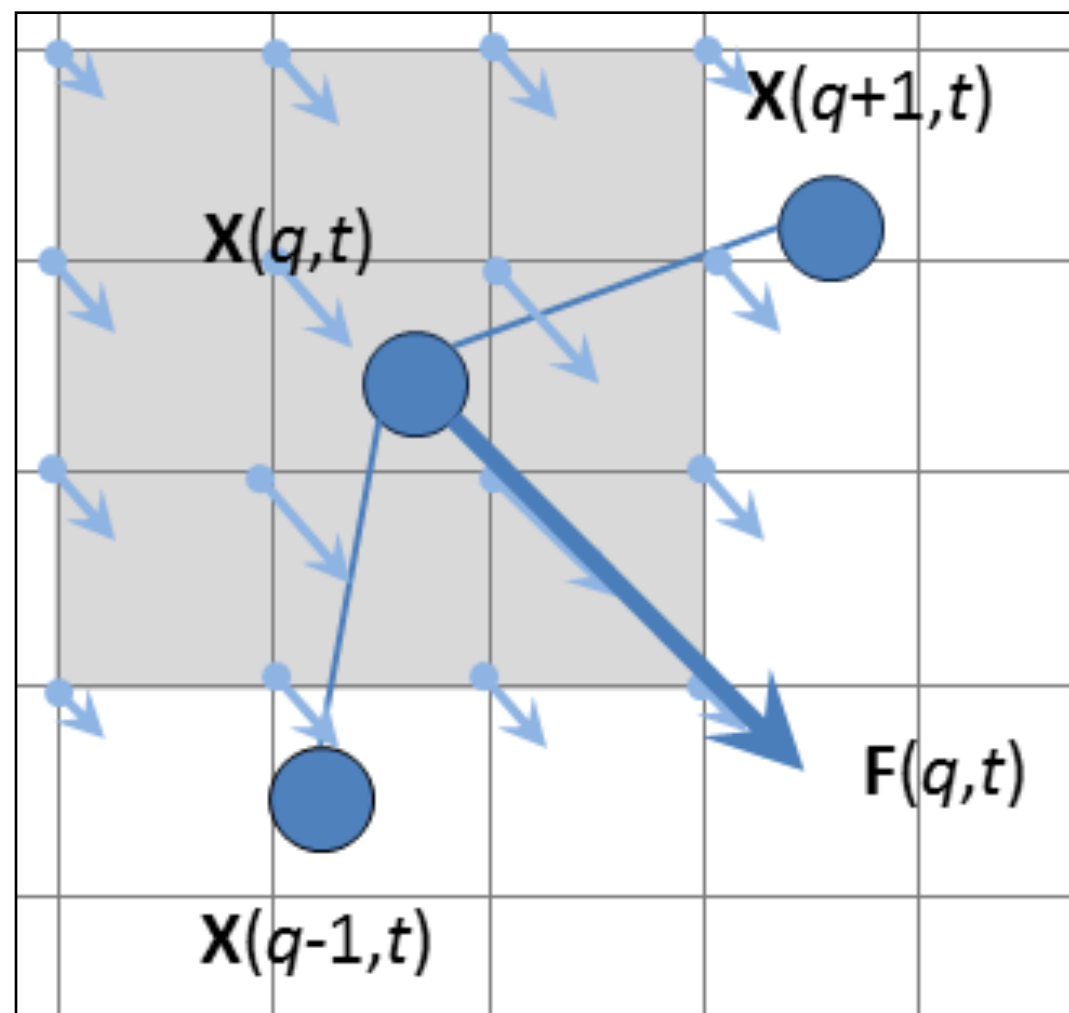


What knowledge do you have to have to understand this graph?

# Modeling fluid flow with IBM

$$\rho(\mathbf{u}_t(\mathbf{x}, t) + \mathbf{u}(\mathbf{x}, t) \cdot \nabla \mathbf{u}(\mathbf{x}, t)) = -\nabla p(\mathbf{x}, t) + \mu \nabla^2 \mathbf{u}(\mathbf{x}, t) + \mathbf{F}(\mathbf{x}, t)$$

$$\nabla \cdot \mathbf{u}(\mathbf{x}, t) = 0$$



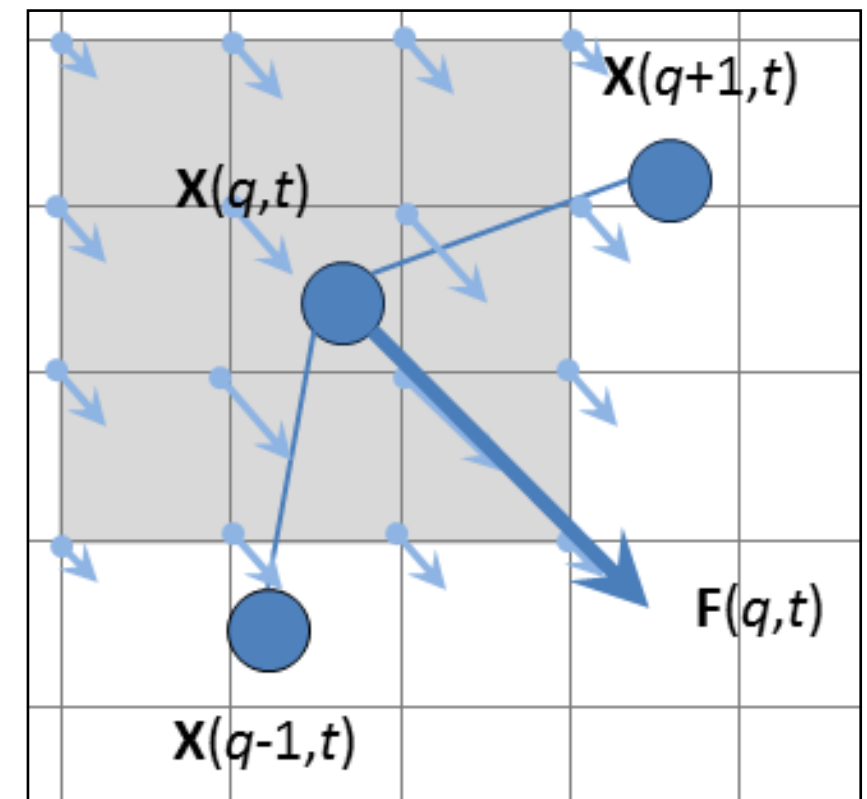
Direct solution of Navier-Stokes equations at all points on the Eulerian grid.

Force of Lagrangian boundary spread to Eulerian grid by Dirac  $\delta$ -function.

Fully coupled method for simulating fluid-structure interactions.

What was wrong with that  
slide?

(What isn't?)



Things you don't understand:

Eulerian grid

Navier-Stokes  
equations

Useless diagram

Lagrangian  
boundary

Any of the variables  
in the equations

$\delta$ -function

IBM??

Knowledge Transfer: **FAIL**

# The False-Belief Test in Children

~~M&M's~~  
(Ribbons)



Ribbons  
False belief  
or “Curse of Knowledge”

# The False-Belief Test in Academics

Presenter



“I use math to solve this fluids problem, therefore anyone can understand what I do.”

Audience member



(Has no experience with modeling fluids, doesn't understand presentation.)



# The False-Belief Test in Academics

Presenter



:(

Audience  
member



:(

# Avoiding the Curse of Knowledge

## Presenter



- Important to note: **you can't do this on your own**
- You need a naïve observer to help you!

How much should I  
assume my audience  
knows, and how much  
should I explain?

# How do you transfer knowledge adequately?

Avoid the “Curse of Knowledge”



Know your audience!



### **3. What methods of communication are available?**

**Poster session**

**Conference talk**

**Online lecture**

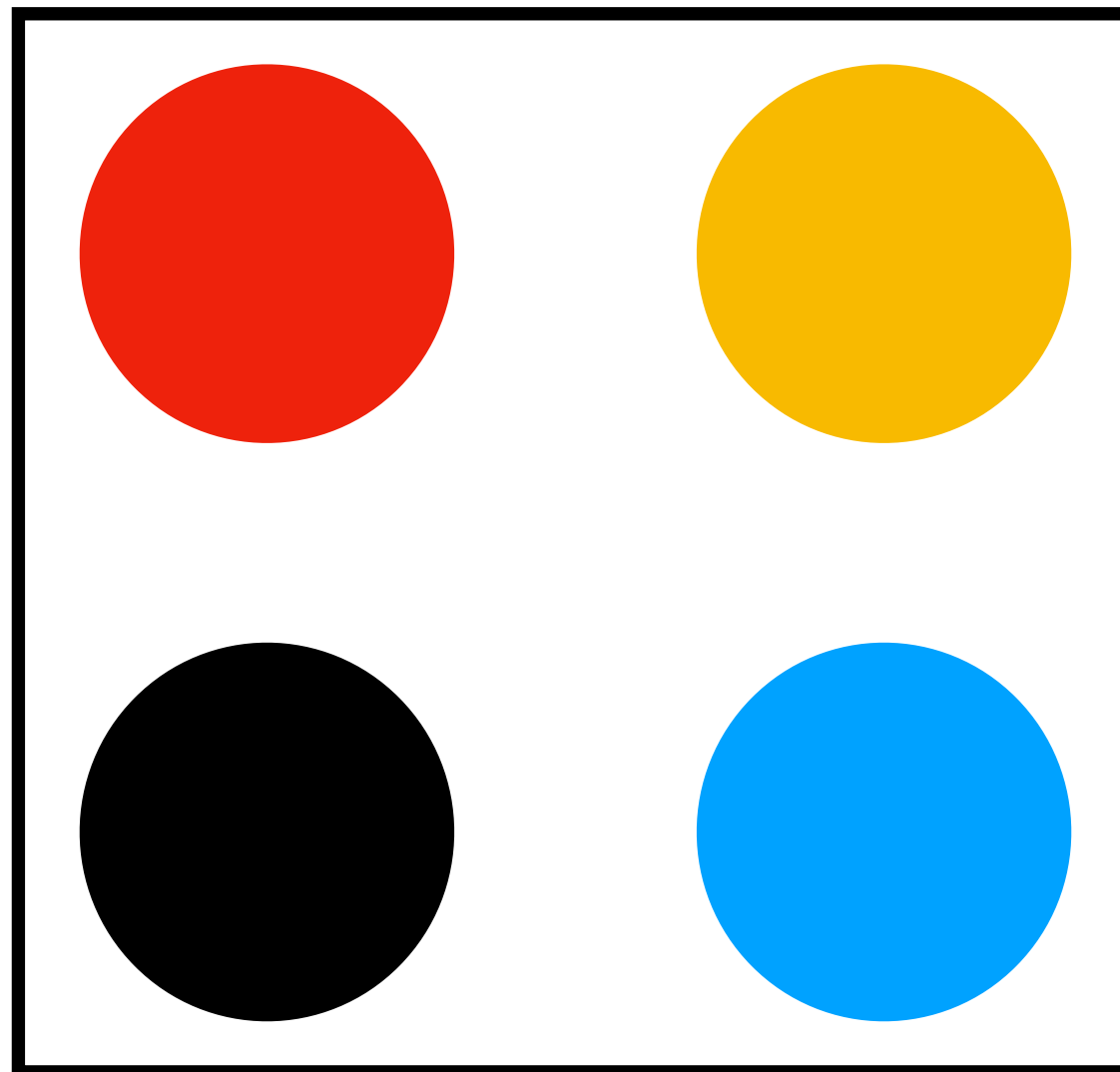
**Scientific publication**

**How will my audience be engaging?**

## 4. Where is your audience's attention? Cognitive load?

Click on the color that is spoken.

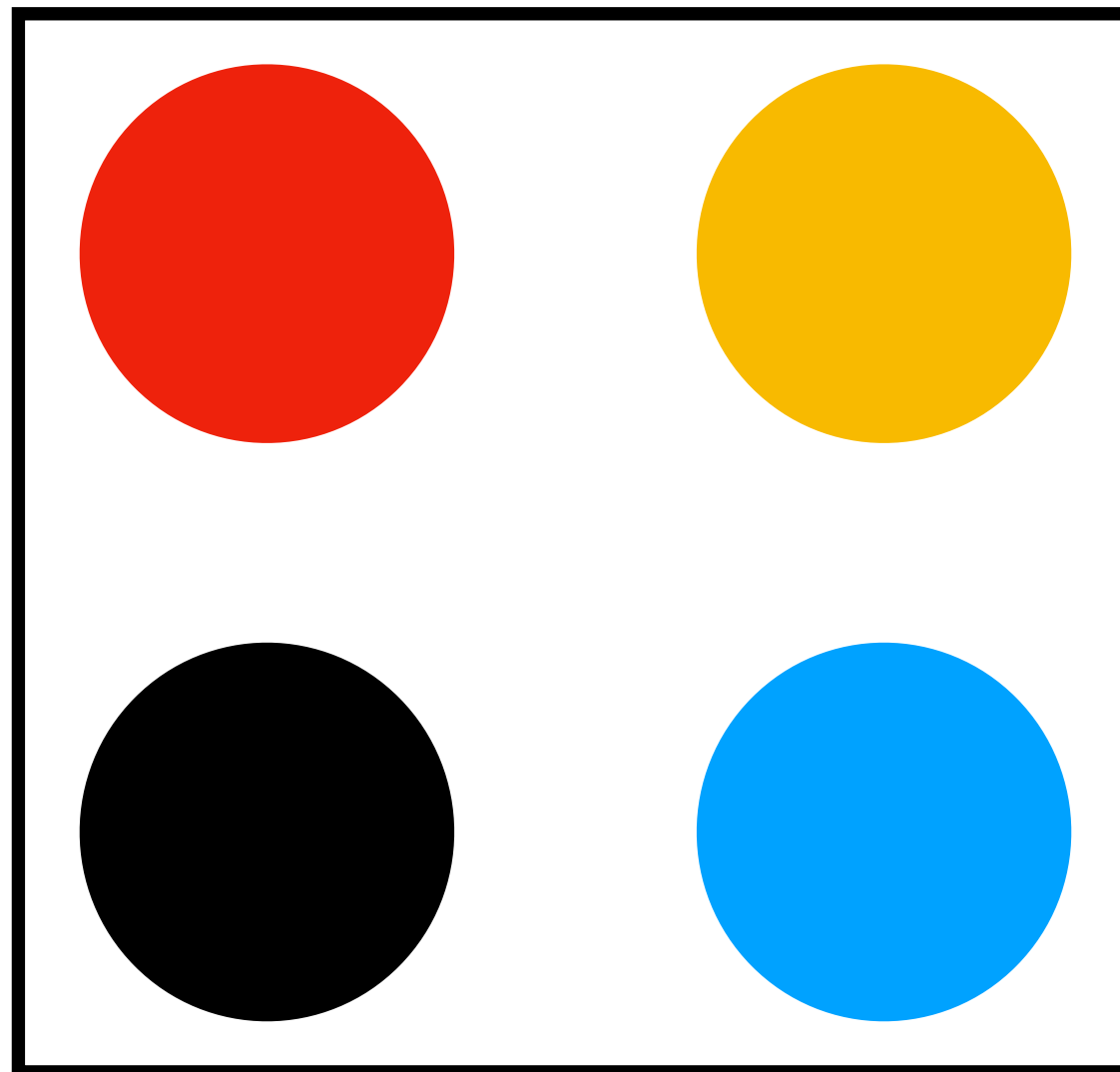
Yellow



## 4. Where is your audience's attention? Cognitive load?

Click on the color that is spoken.

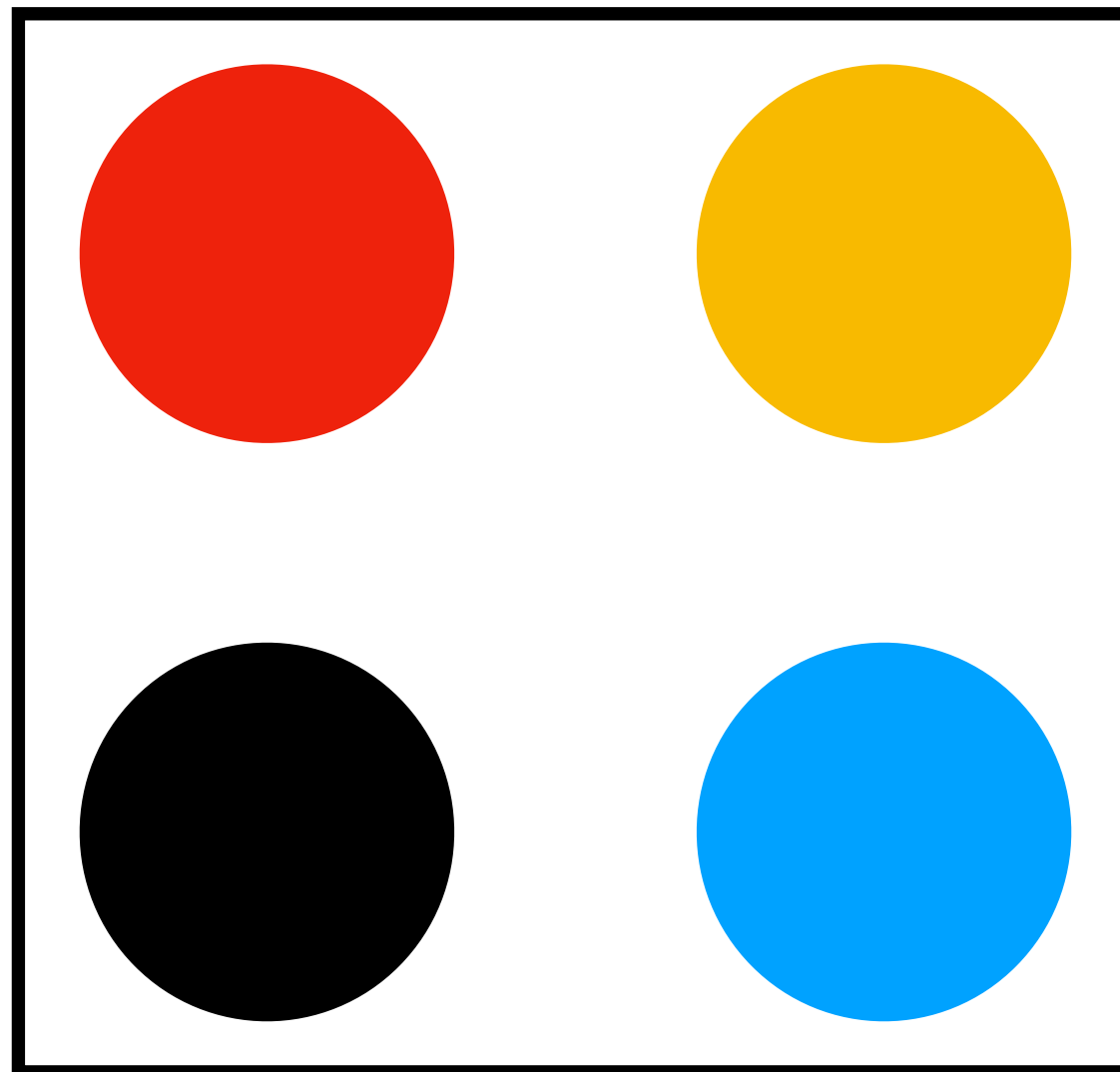
Red



## 4. Where is your audience's attention? Cognitive load?

Click on the color that is spoken.

**Black**



# 4. Where is your audience's attention? Cognitive load?

Point to the circle with the color that is spoken.

Three cues are the same

Verbal and visual same,  
text different

Three cues different

**Yellow**

**Red**

**Black**

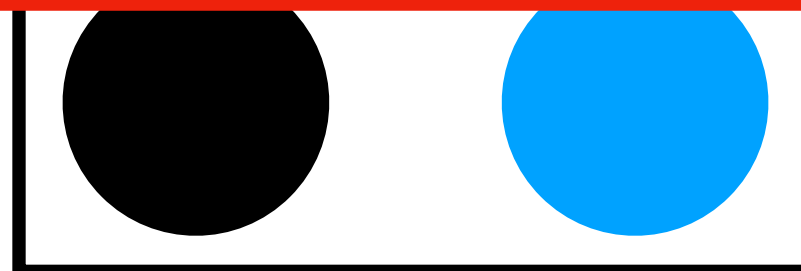
Shortest

Longer

Longest



It is critical that these cues sync at all times,  
otherwise you can make comprehension and  
cognitive load worse!





# Visual and Verbal Components

**Jane is Jim's boss.**

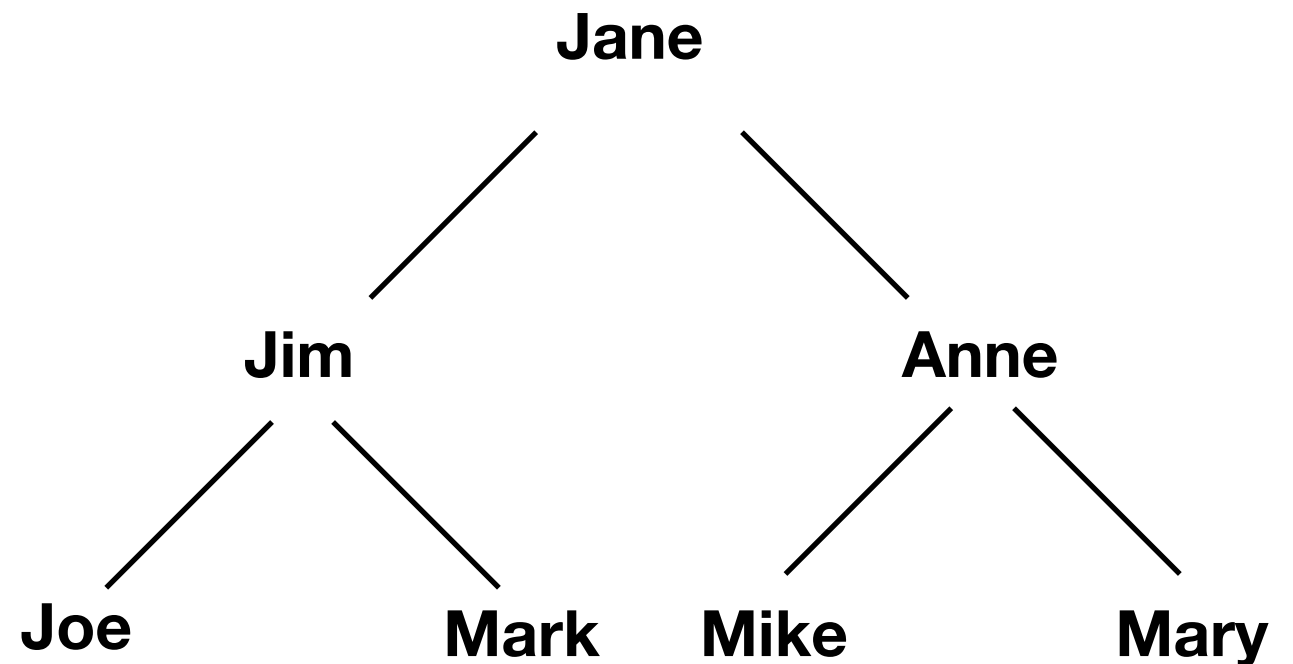
**Jim is Joe's boss.**

**Anne works for Jane.**

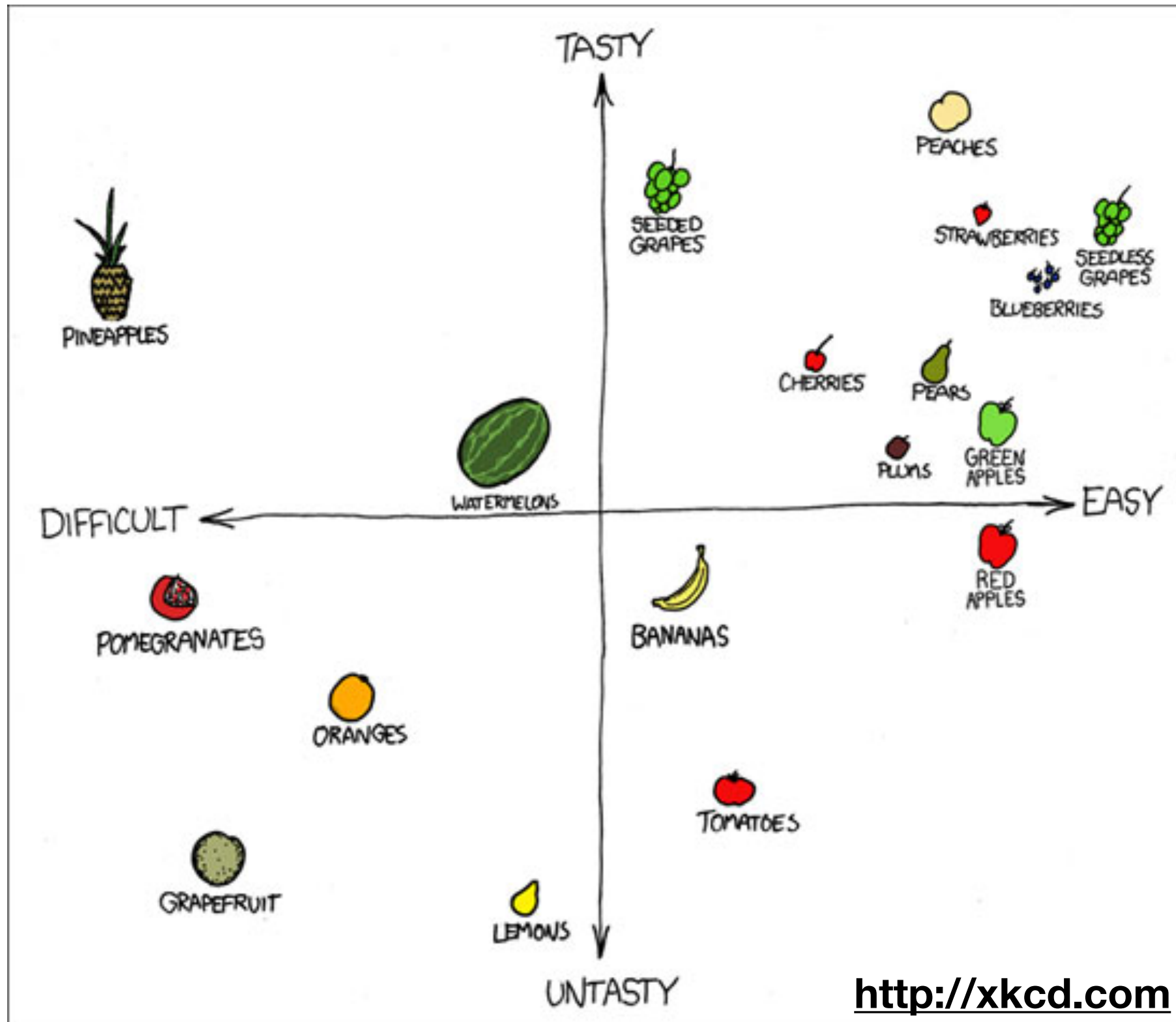
**Mark works for Jim.**

**Anne is Mary's boss.**

**Anne is Mike's boss.**



# Linking Visual and Verbal components



# Group work: Ordered Editing List

Create your own editing list based on the information you've learned in the course so far. This could include everything from design guidelines on visual objects to presentation guidelines. Order them from the most broad aspects (overall organization, answering the question) to the more specific (aesthetics, when to use gestures, etc). At each step, edit for take-away message. In the later steps, make sure to edit for cognitive load.