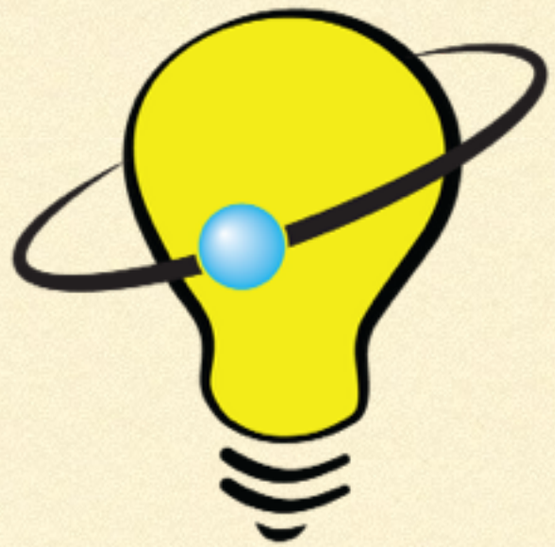
Teaching Graphics Online

Andrew Glassner

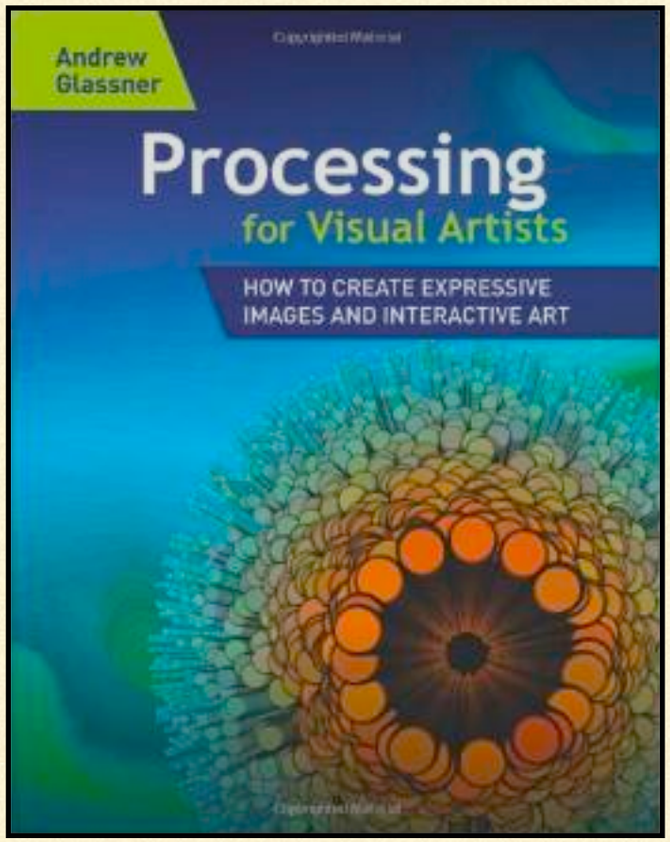
The Imaginary Institute

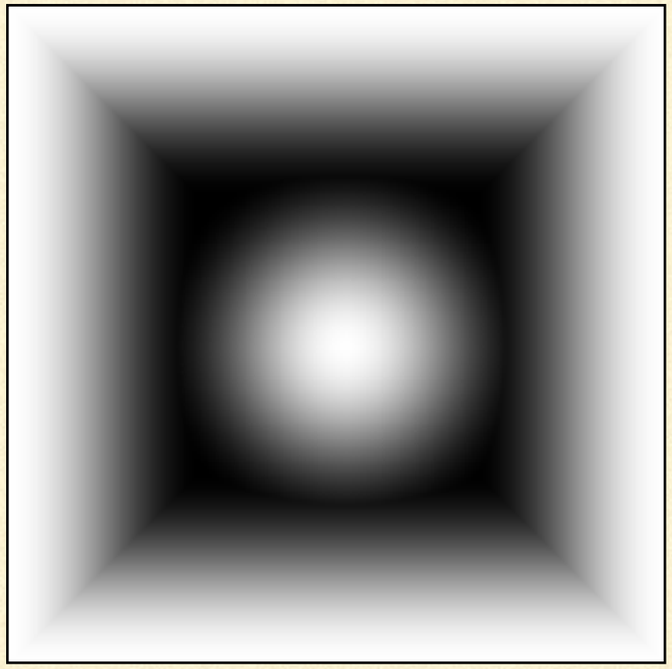
imaginary-institute.com

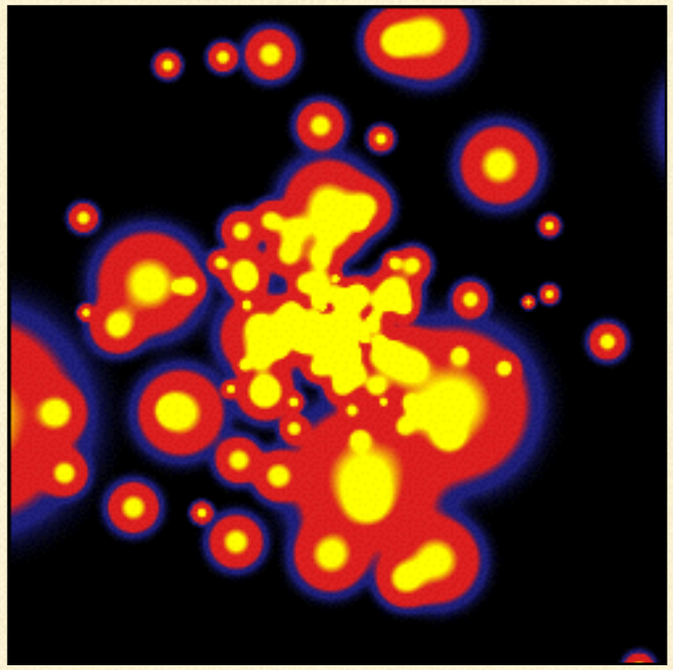


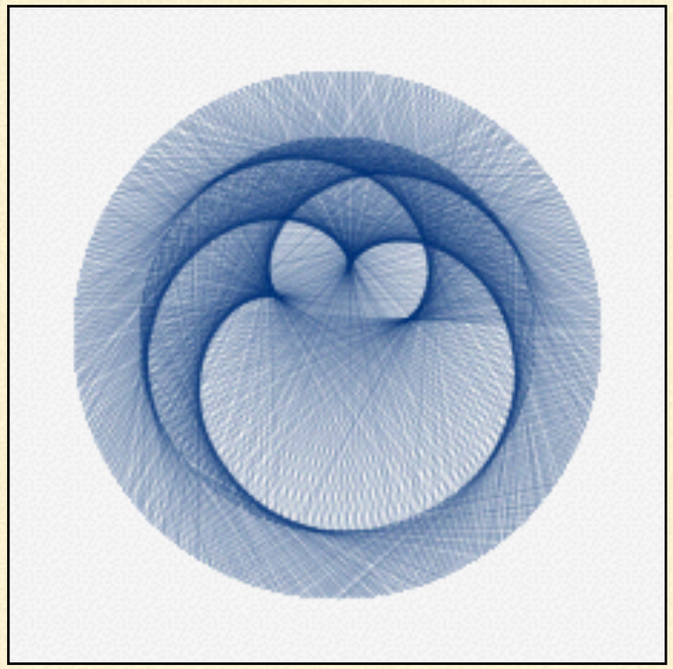
Processing

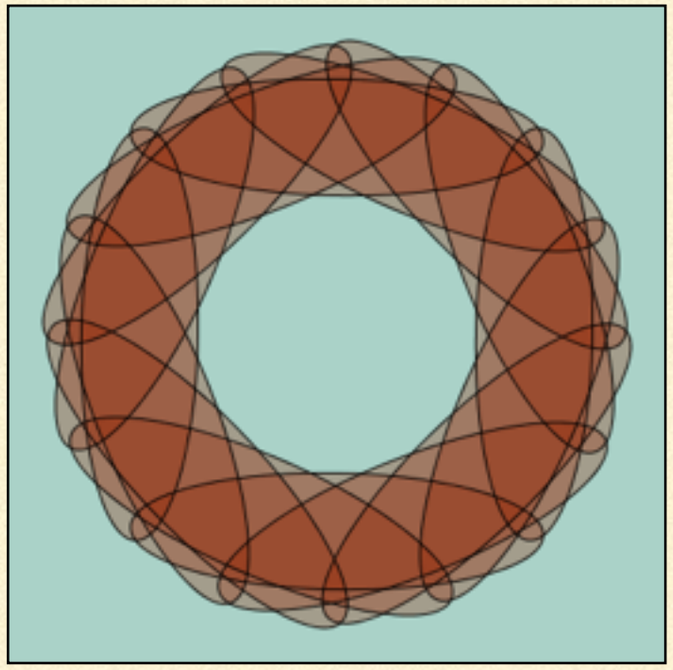
processing.org

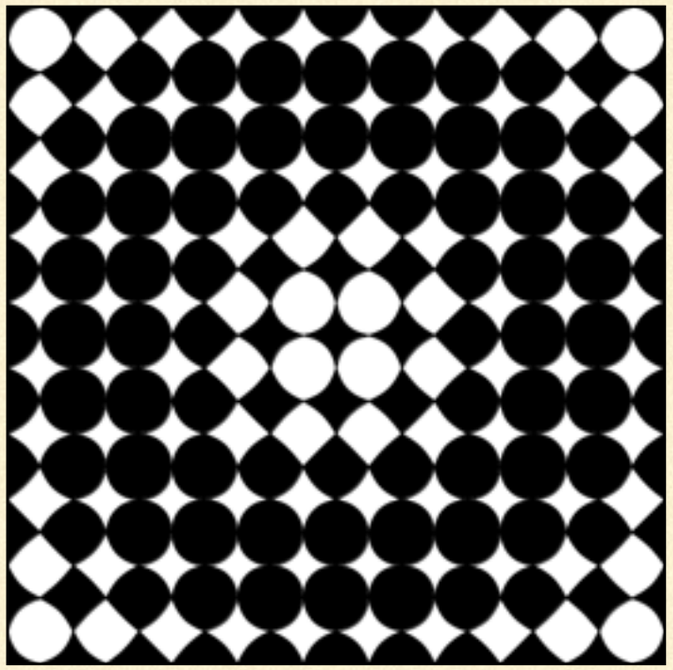


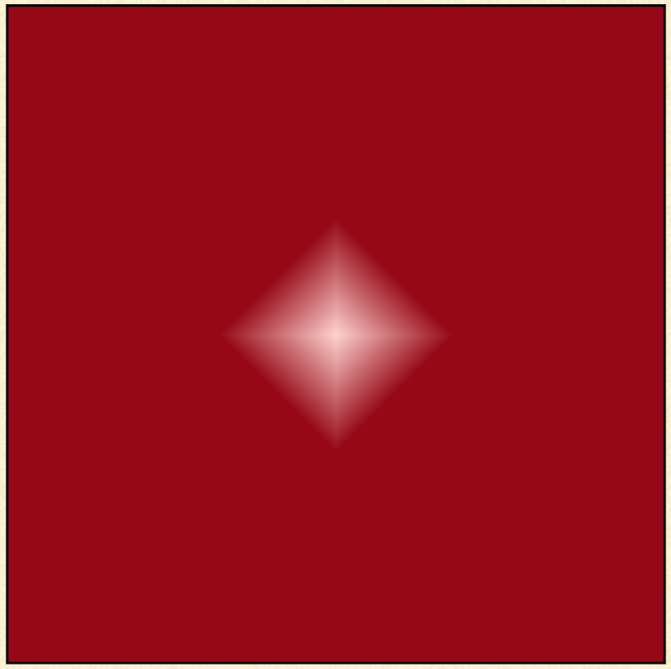


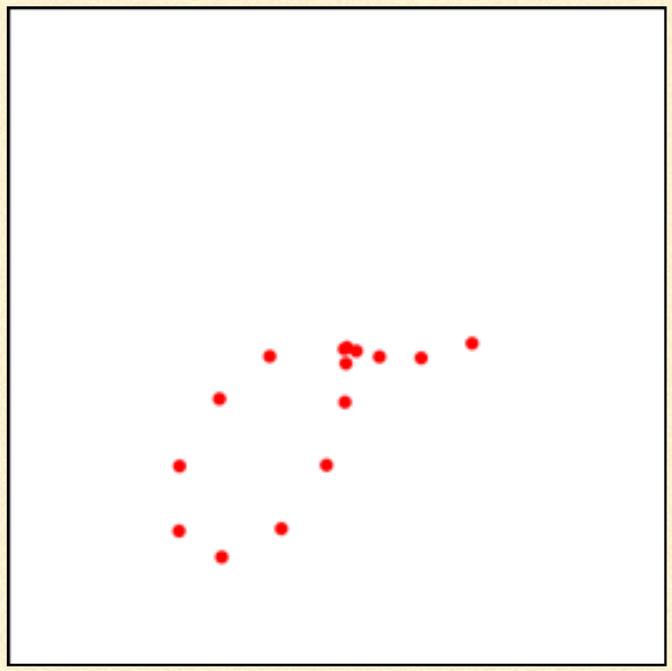












“If I had 10 hours to chop down a tree, I’d spend the first 9 hours sharpening my axe.”

–Abraham Lincoln

My Studio

Speakers

Pre-amp

Headphones

Comfy Chair

out of shot: backup!

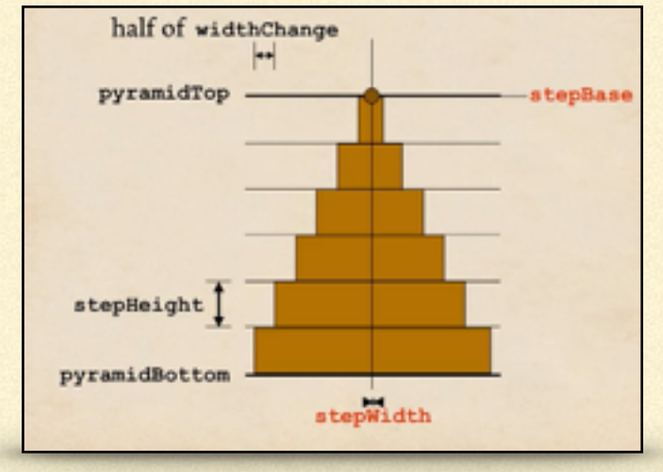
Mic on boom

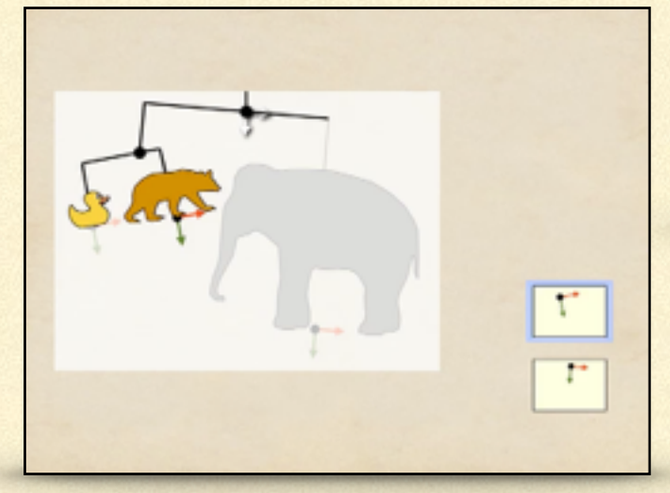
Paper

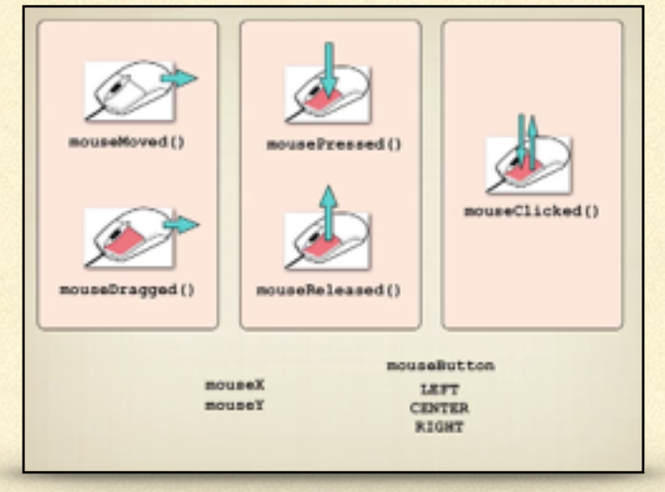
Colors!

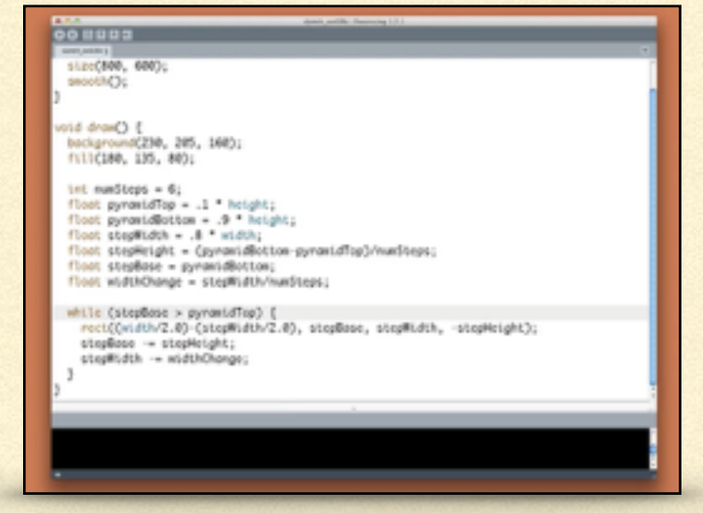
Tablet

Friend







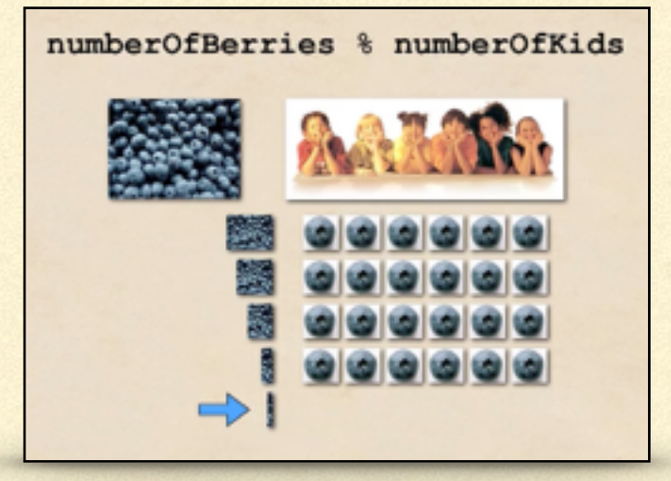


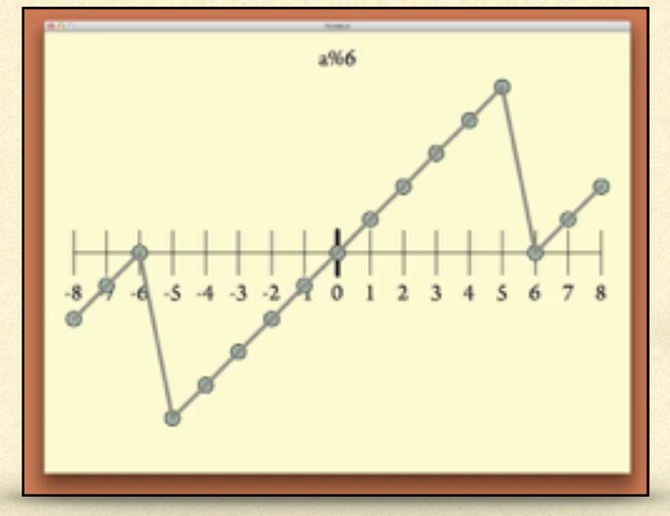
```
size(800, 600);
smooth();
}

void draw() {
  background(230, 205, 160);
  fill(180, 135, 80);

  int numSteps = 6;
  float pyramidTop = .1 * height;
  float pyramidBottom = .9 * height;
  float stepWidth = .8 * width;
  float stepHeight = (pyramidBottom-pyramidTop)/numSteps;
  float stepBase = pyramidBottom;
  float widthChange = stepWidth/numSteps;

  while (stepBase > pyramidTop) {
    rect((width/2.0)-(stepWidth/2.0), stepBase, stepWidth, -stepHeight);
    stepBase -= stepHeight;
    stepWidth -= widthChange;
  }
}
```



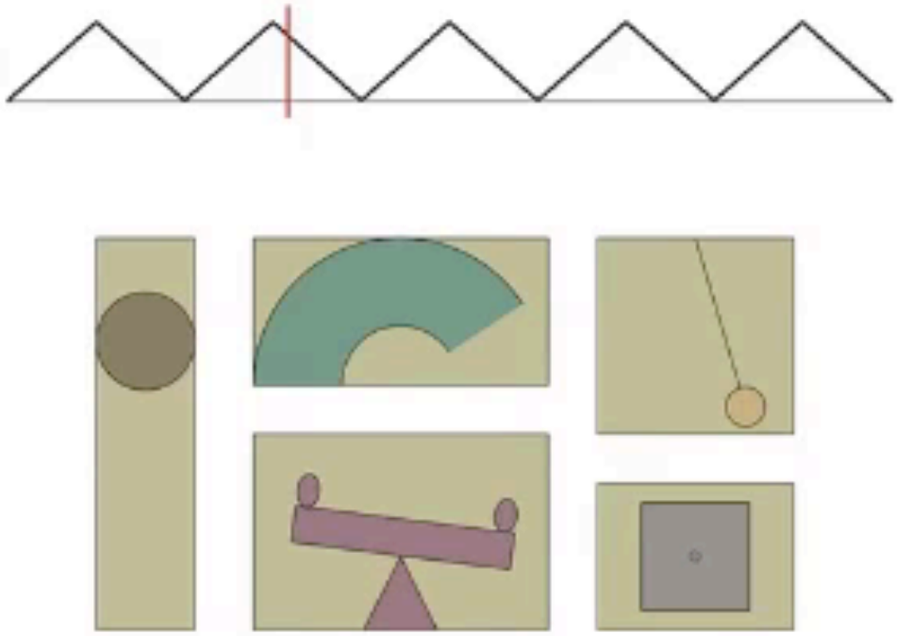


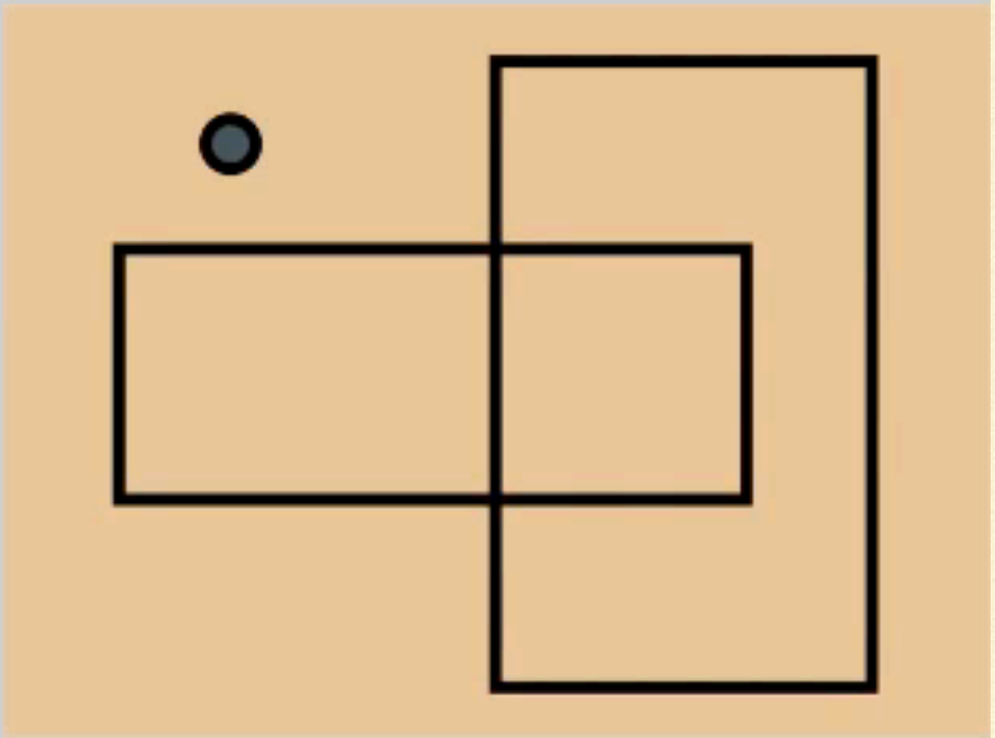

```
ellipse(CenterX, CenterY, d, d);

void mousePressed() {
  OffsetX = CenterX - mouseX;
  OffsetY = CenterY - mouseY;
  followMouse();
}

void mouseDragged() {
  followMouse();
}


void followMouse() {
  CenterX = mouseX;
  CenterY = mouseY;
}
```



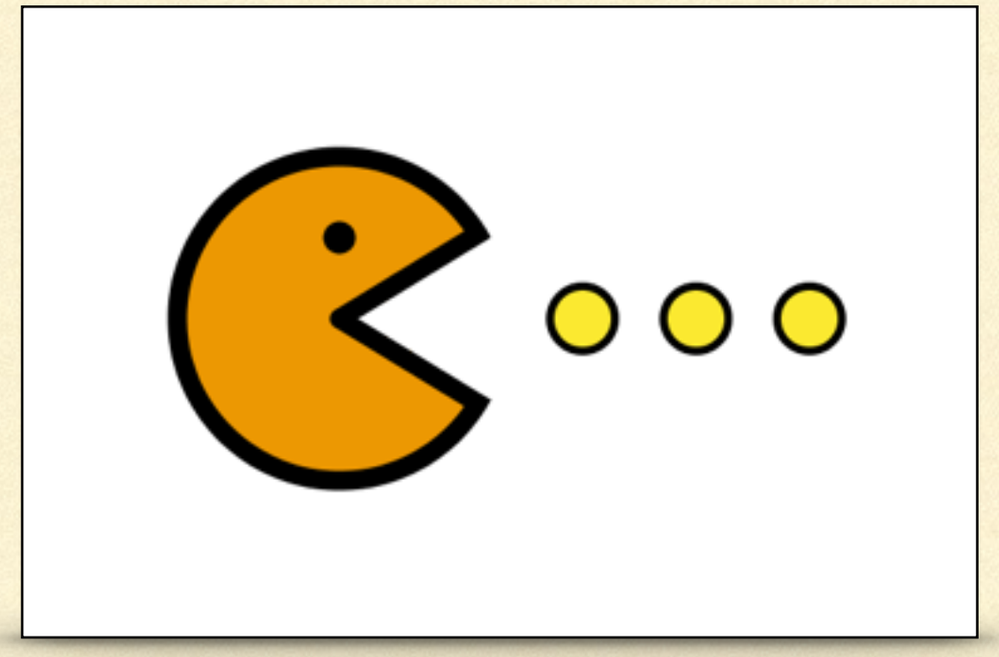


```
boolean goodParty = goodPeople || goodSnacks;
```

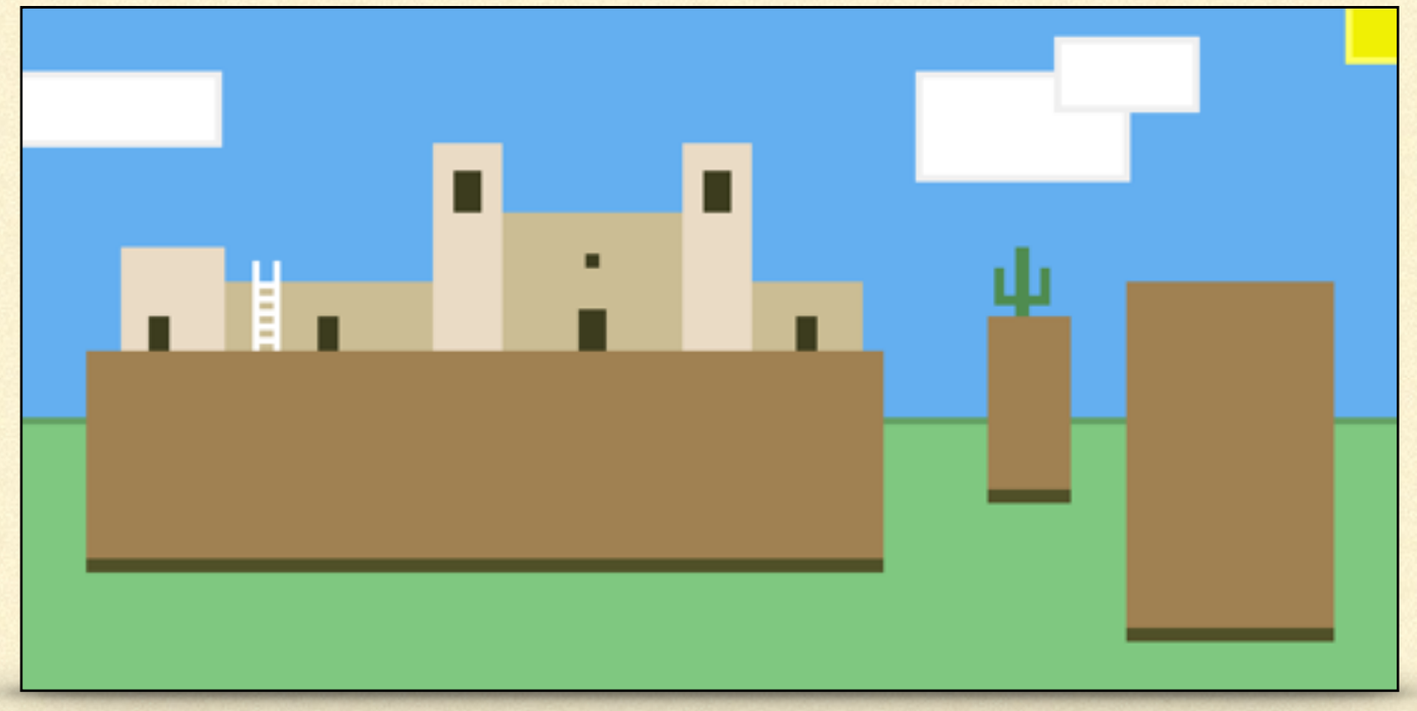
goodParty	goodPeople	goodSnacks

Homework

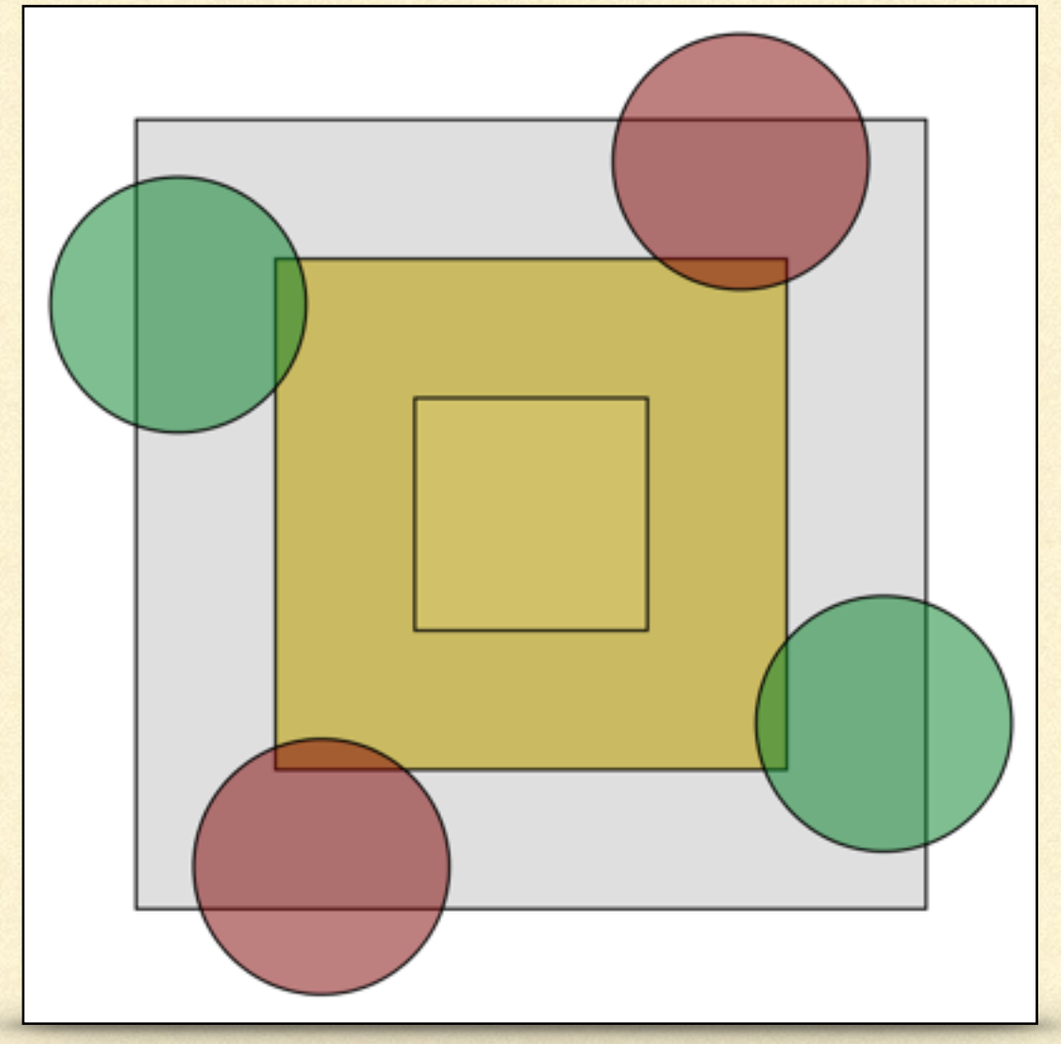
- **Weekly**
- **Super open-ended**
- **Encourage creativity**



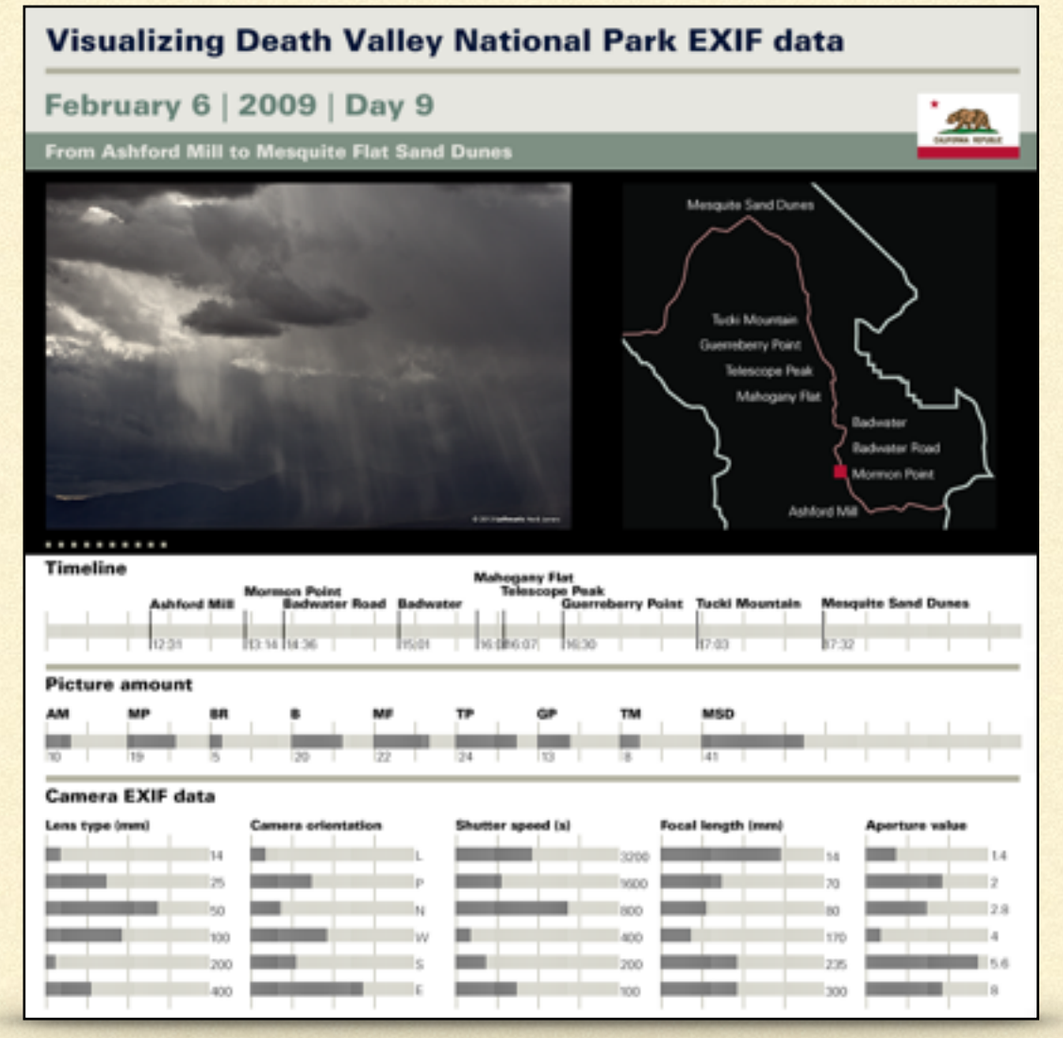
Duong Hoang



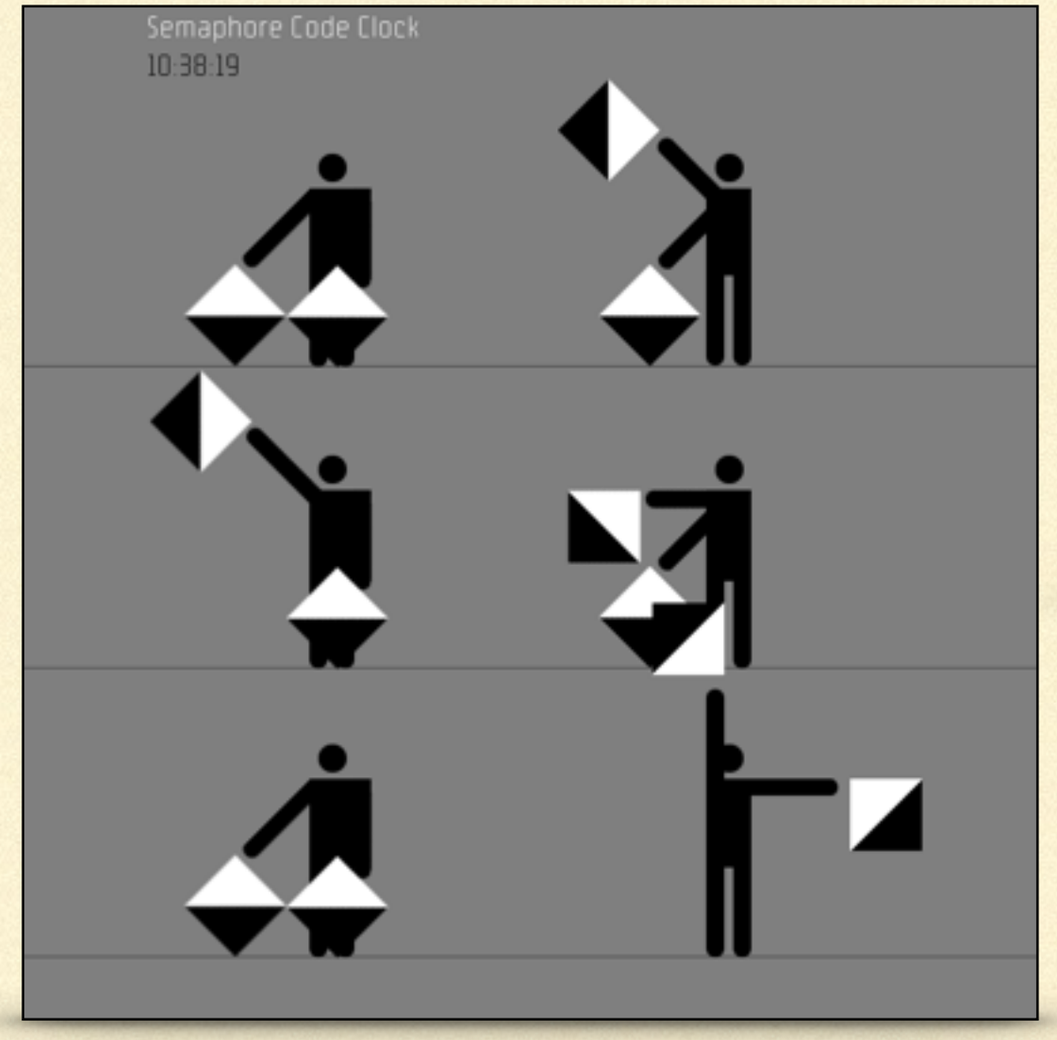
Holly Vives



Wesley Griffin



Henk Lamers



Henk Lamers

The first time I laid a hand on a computer was when I took my first computer programming course 30 years ago from Mrs. Rachel Avery. I was 8 and I was working on one of these:

Holly Vives

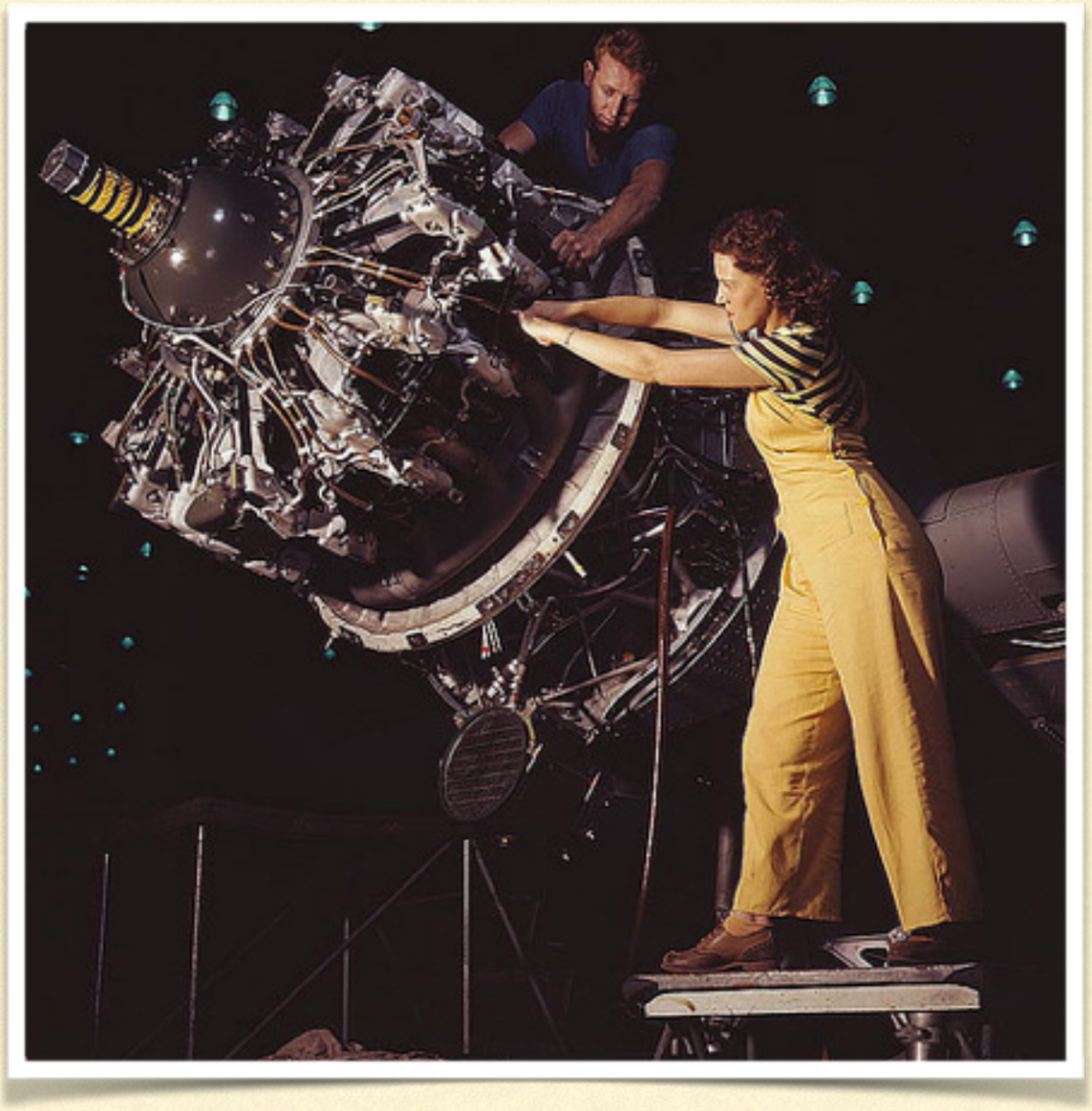
Homework Critiques

Holly Vives

Homework Critiques

Production Flow

- Think everything through
- Try it a few times
- Repeat until perfect

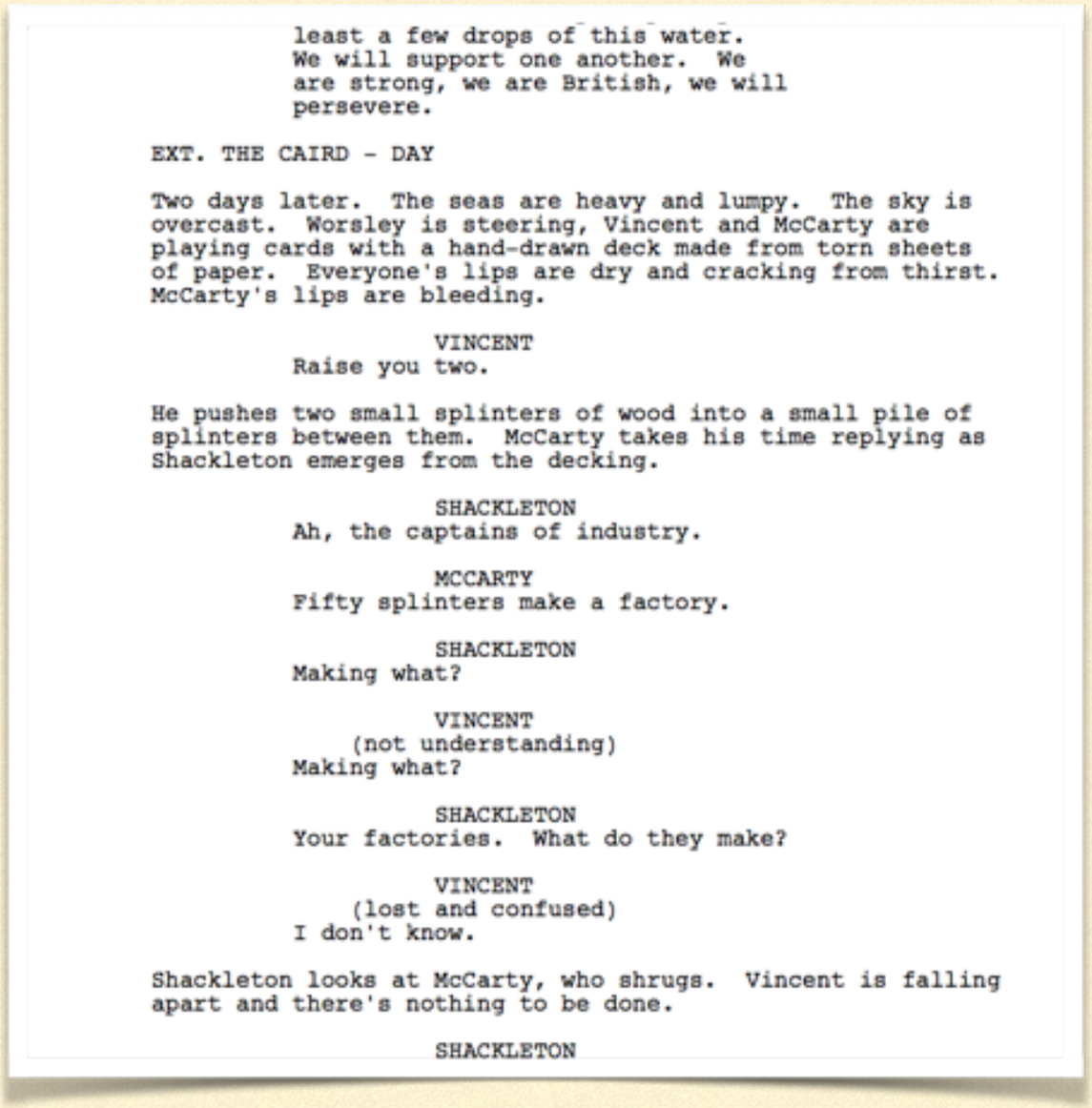


Visual Stuff

- Video size
- Fonts
- Backgrounds and colors
- Visual effects
- Slide formats & transitions

Production Stuff

- Scriptwriting
- Audio first? Video first?
- Audio and video together?
- Interactive demos
- Retakes and edits



least a few drops of this water.
We will support one another. We
are strong, we are British, we will
persevere.

EXT. THE CAIRD - DAY

Two days later. The seas are heavy and lumpy. The sky is overcast. Worsley is steering, Vincent and McCarty are playing cards with a hand-drawn deck made from torn sheets of paper. Everyone's lips are dry and cracking from thirst. McCarty's lips are bleeding.

VINCENT
Raise you two.

He pushes two small splinters of wood into a small pile of splinters between them. McCarty takes his time replying as Shackleton emerges from the decking.

SHACKLETON
Ah, the captains of industry.

MCCARTY
Fifty splinters make a factory.

SHACKLETON
Making what?

VINCENT
(not understanding)
Making what?

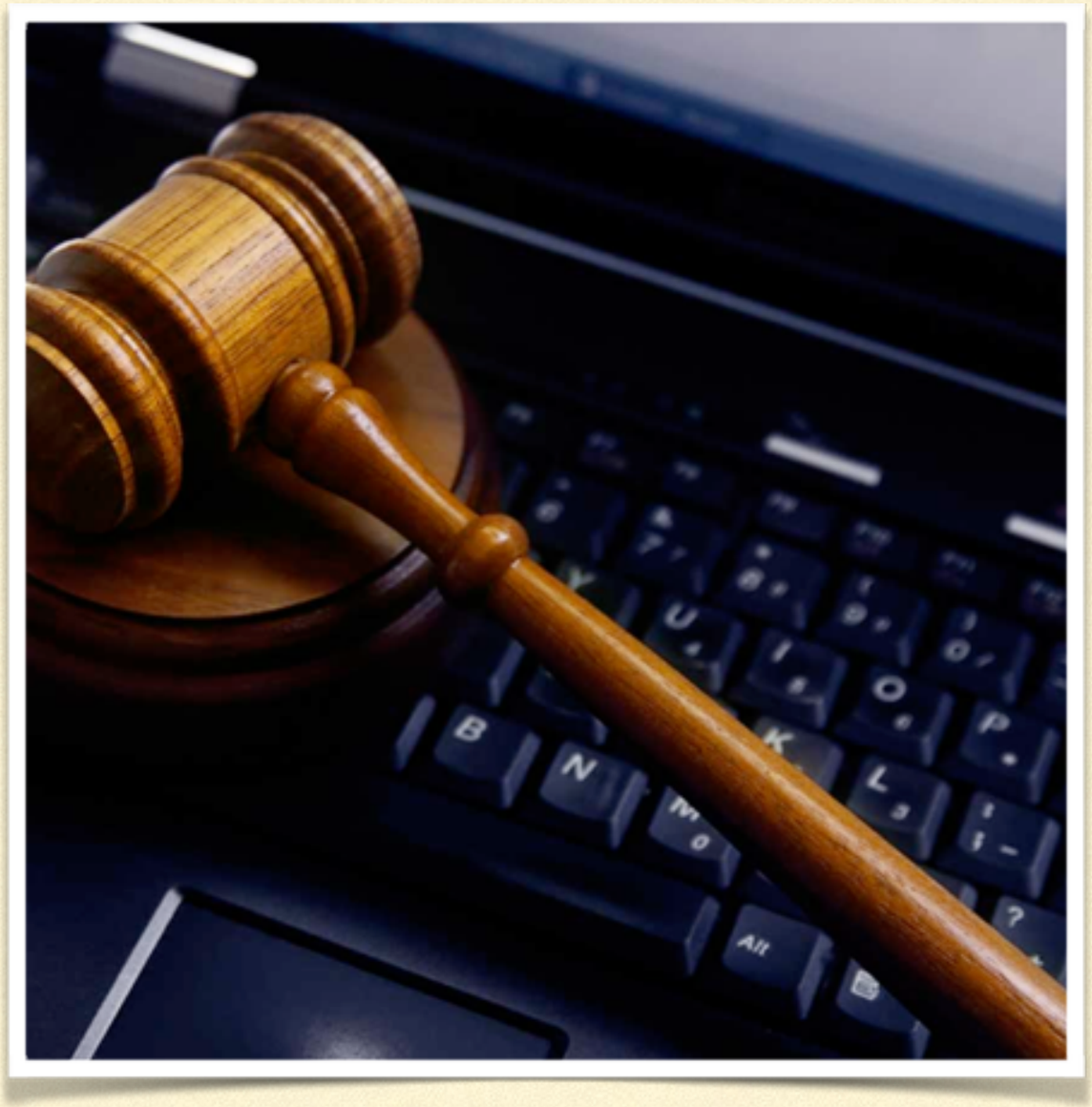
SHACKLETON
Your factories. What do they make?

VINCENT
(lost and confused)
I don't know.

Shackleton looks at McCarty, who shrugs. Vincent is falling apart and there's nothing to be done.

SHACKLETON

Legal Stuff

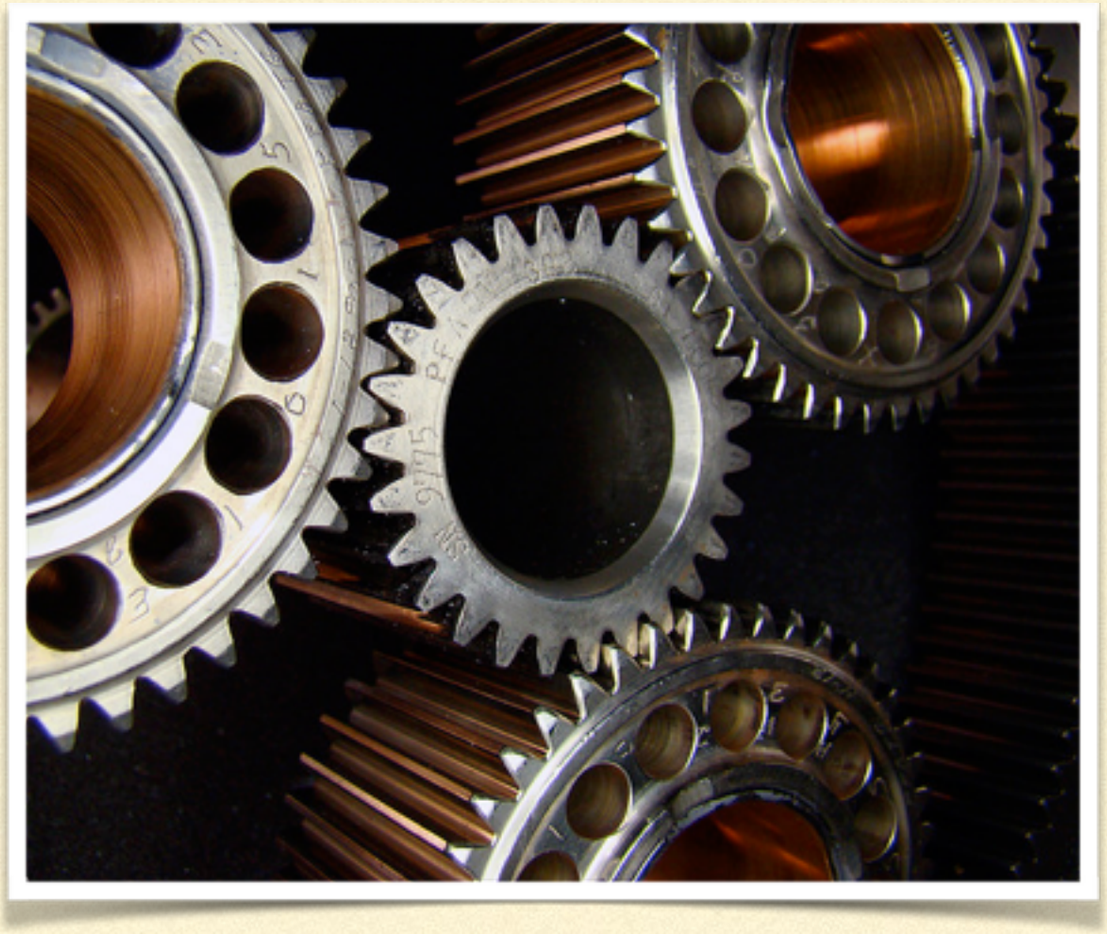


- Form LLC, get licenses
- ToS & privacy
- Money and taxes
- Refund policy
- DRM?

Delivery Stuff

- **Custom website**
- **Streaming or download?**
- **How long does access last?**
- **Hosts: site, videos, etc.**
- **Programs & examples**

What Worked For Me



- **Metaphors**
- **Audio & video together**
- **Keynote & custom programs**
- **Lots of live demos**
- **Multiple full takes**

Public Domain Pictures!

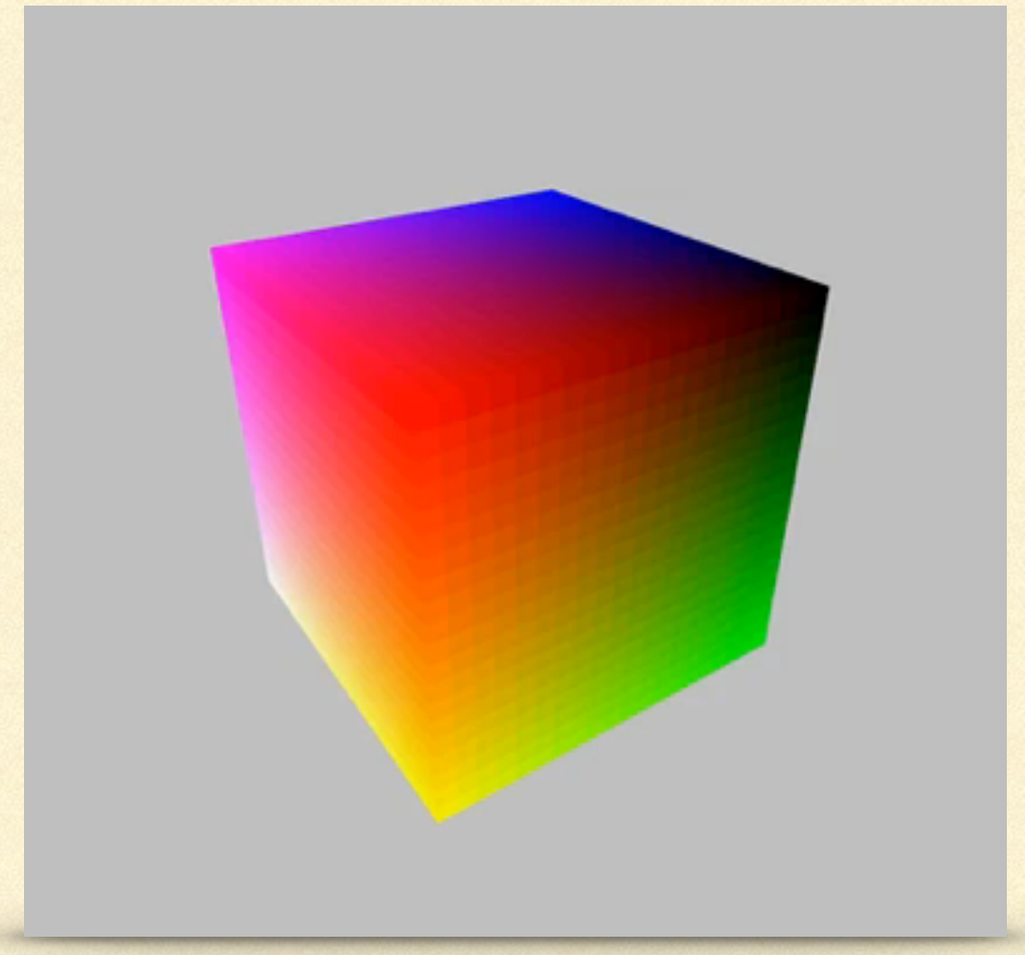
- Wiki *
- NASA, usa.gov, etc.
- Library of Congress
- freeimages.com
- freerangestock.com
- pixabay.com
- morguefile.com
- flickr.com/commons
- bing.com/images (license menu)

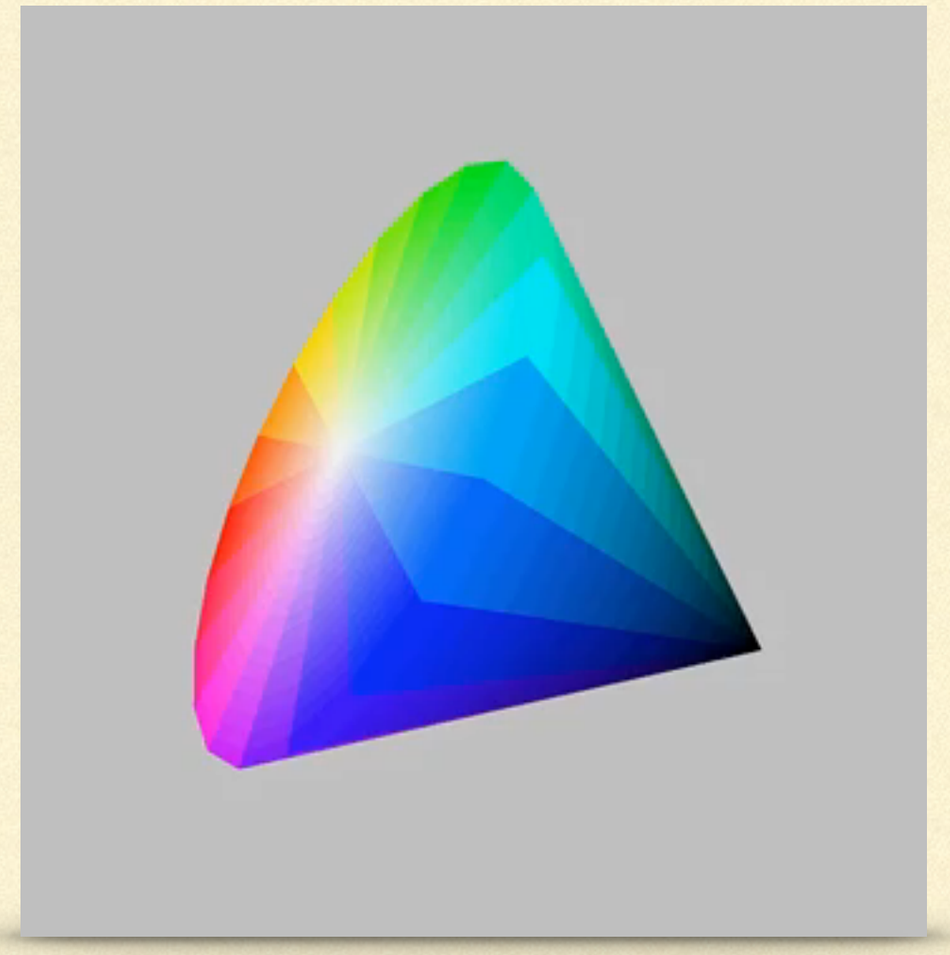
Save the URL

- **Proof of source**
- **Get it again later**
- **Save highest-res version**

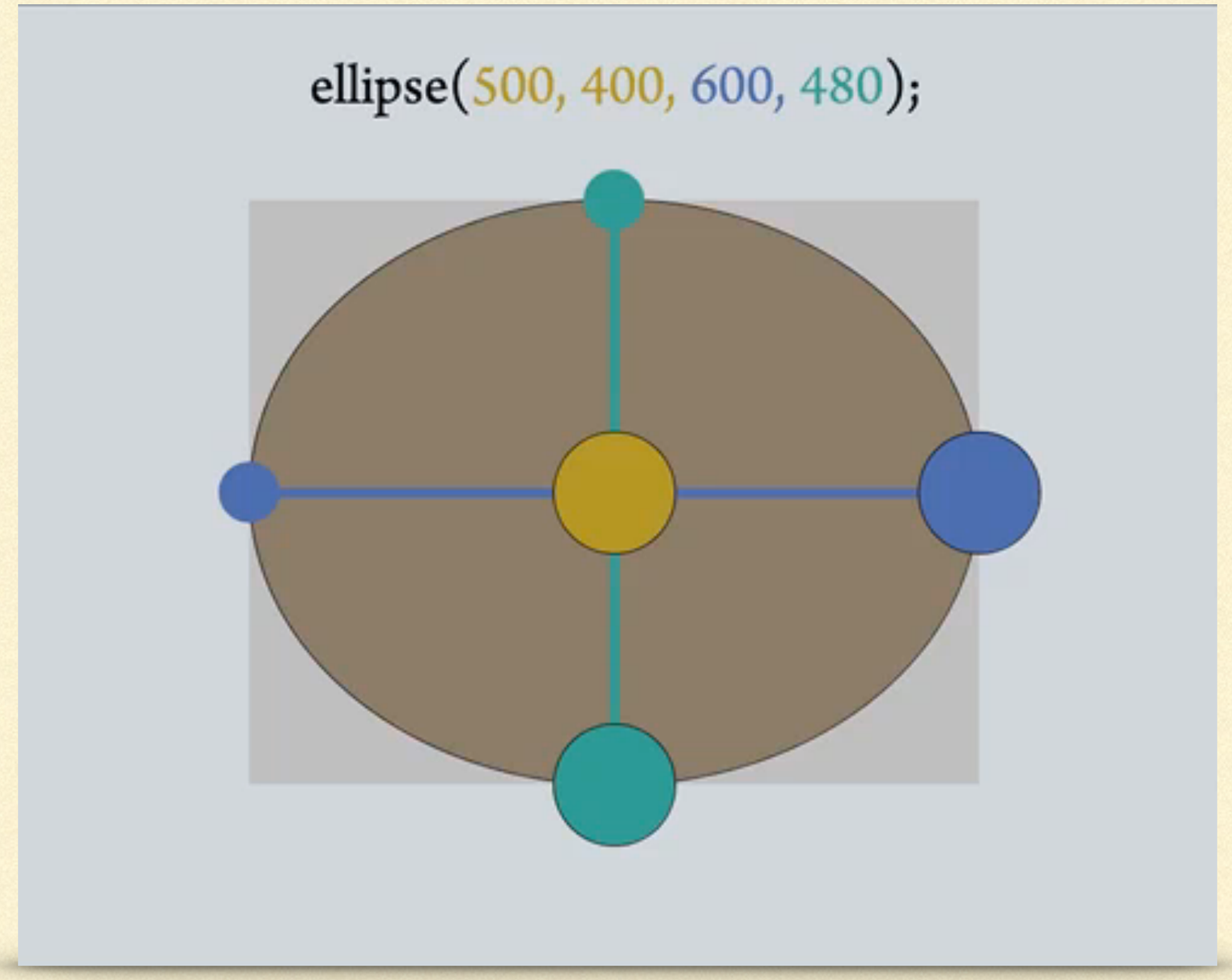
http://pixabay.com/en/polar-bear-bear-arctic-animal-406997/

Live Animation!





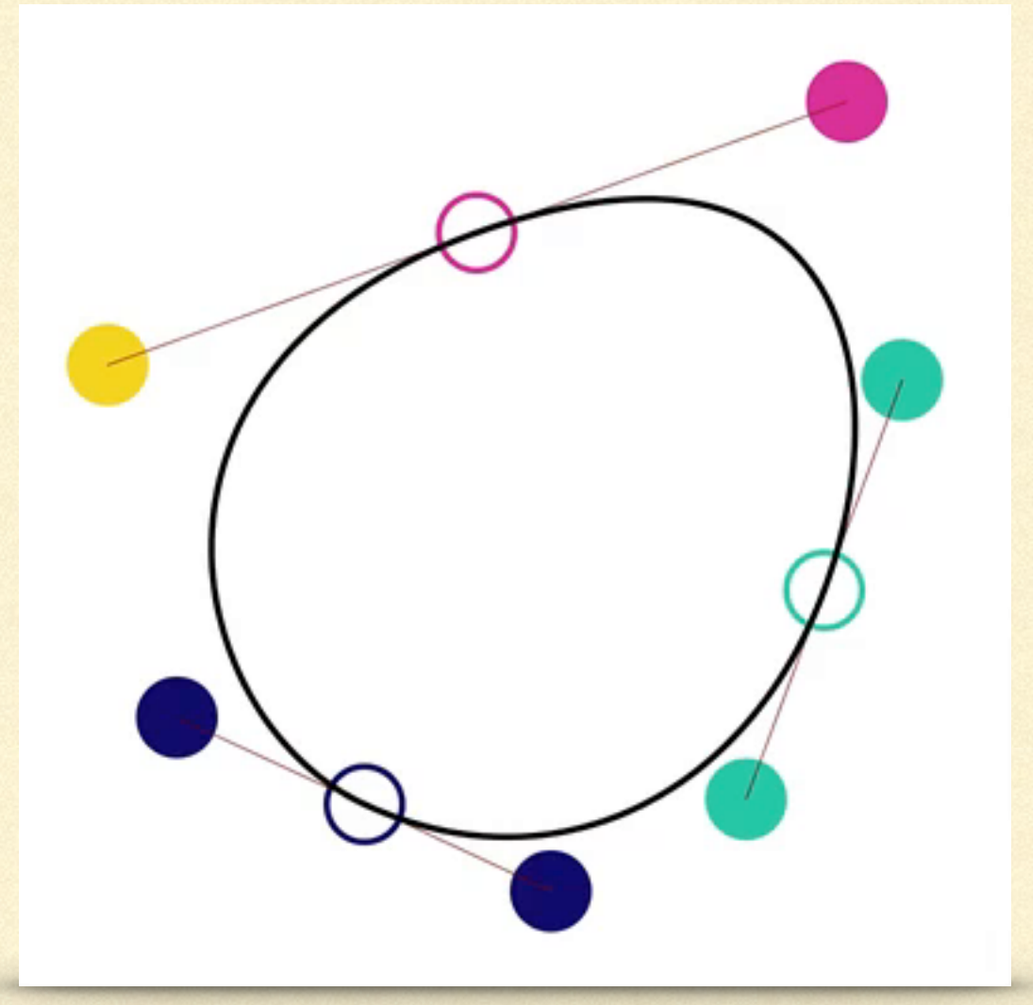
Show the Code

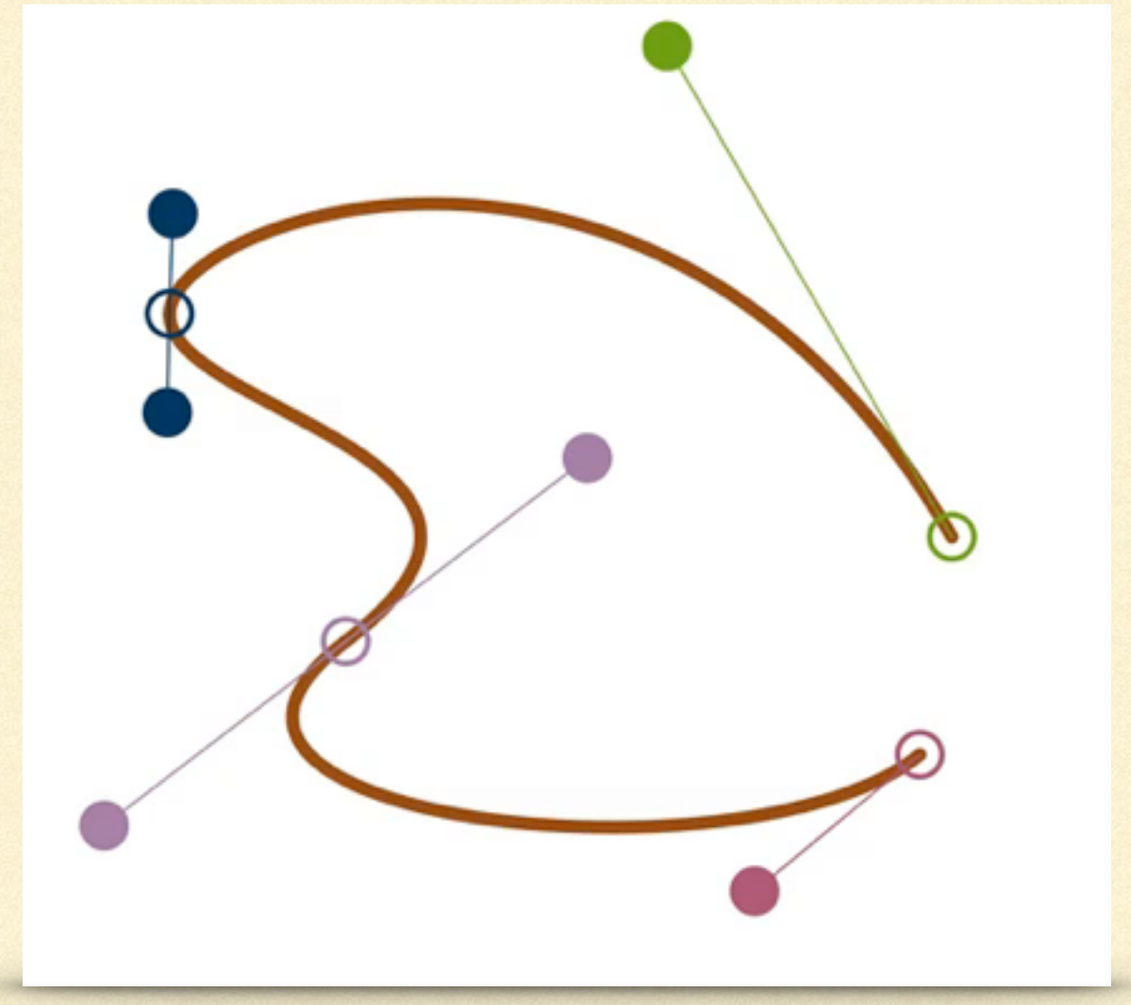


Animated Code

Animated Code

Animate & Vary Stuff





Video Thinking

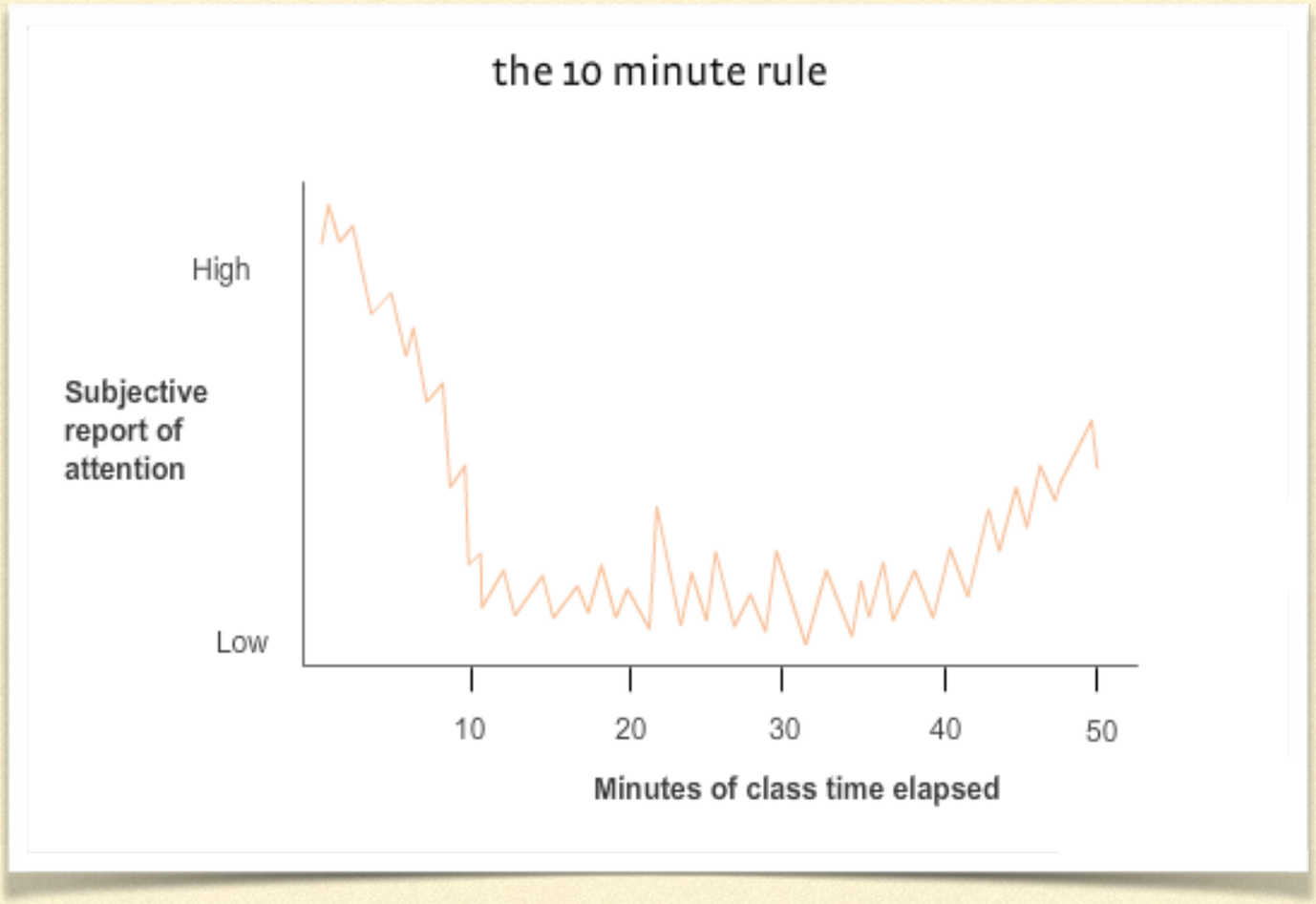
Be aware

- Re-watchable
- Speed control
- Freeze frames

Beware

- One size must fit all
- No errors, even little ones
- Changes have huge cost

10-minute Rule

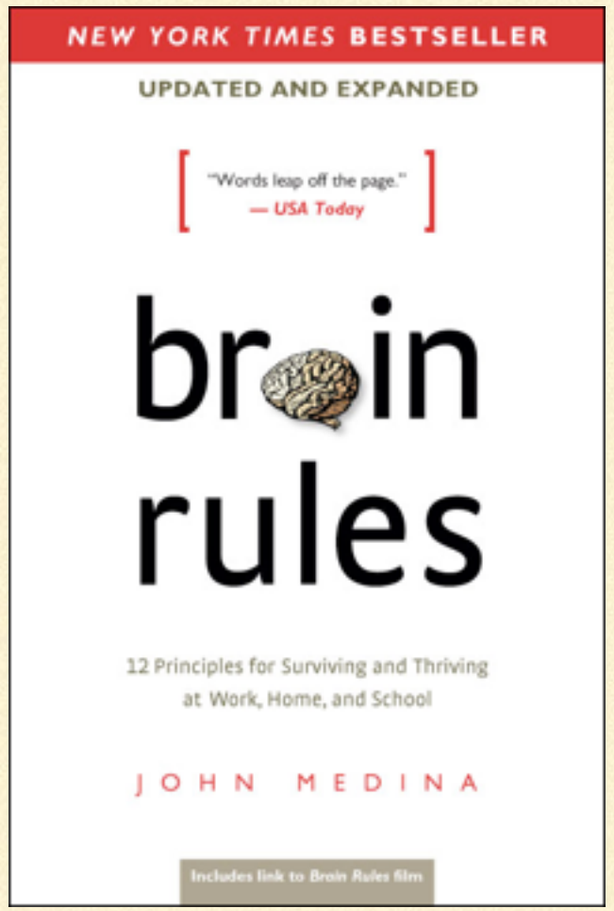


http://www.brainrules.net/attention/?scene=1

Dr. John Medina, "Brain Rules"

(Some) Brain Rules

- Avoid stress
- We don’t pay attention to boring things
- Repeat to remember
- Simulate multiple senses
- Vision trumps all other senses



Why, What, How

Why, What, How

Variables

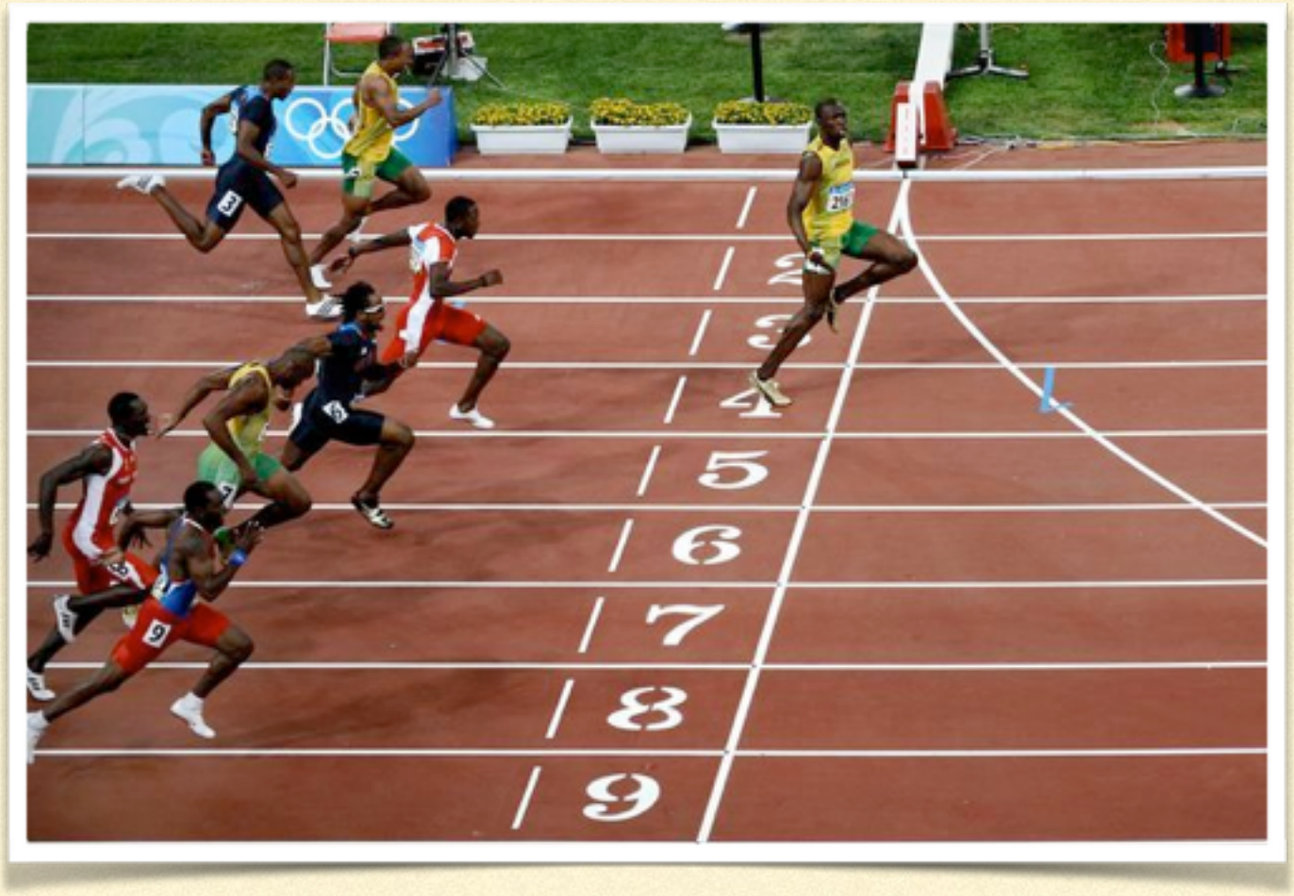
- Concrete and real
- No programming

Why, What, How

If Statements

Why, What, How

Arrays

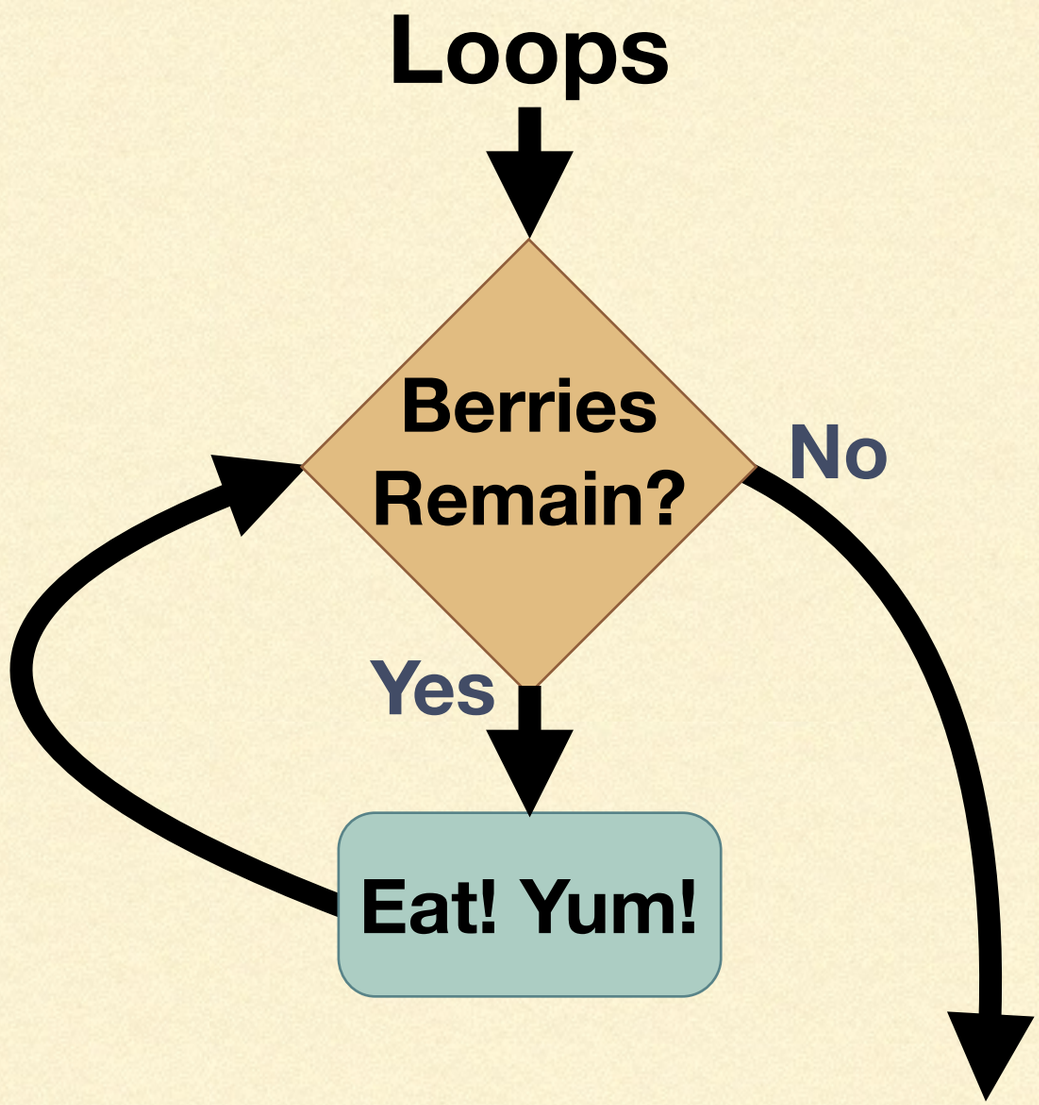


Why, What, How

Loops

Why, **What**, How

- **Abstract idea**



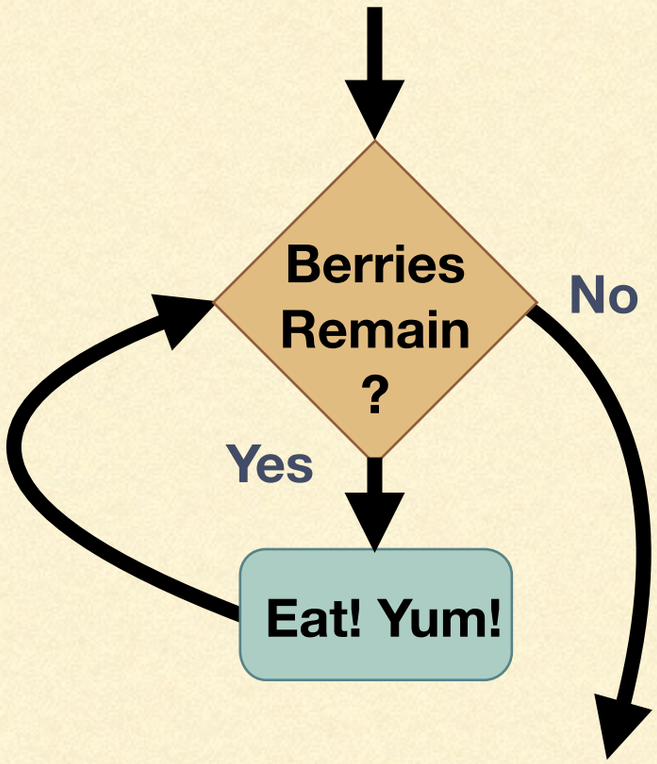
Why, What, **How**

Loops

- Syntax

```
if (berriesRemain) {
   eatBerry();
} else {
   print("I ate them all!");
}
```

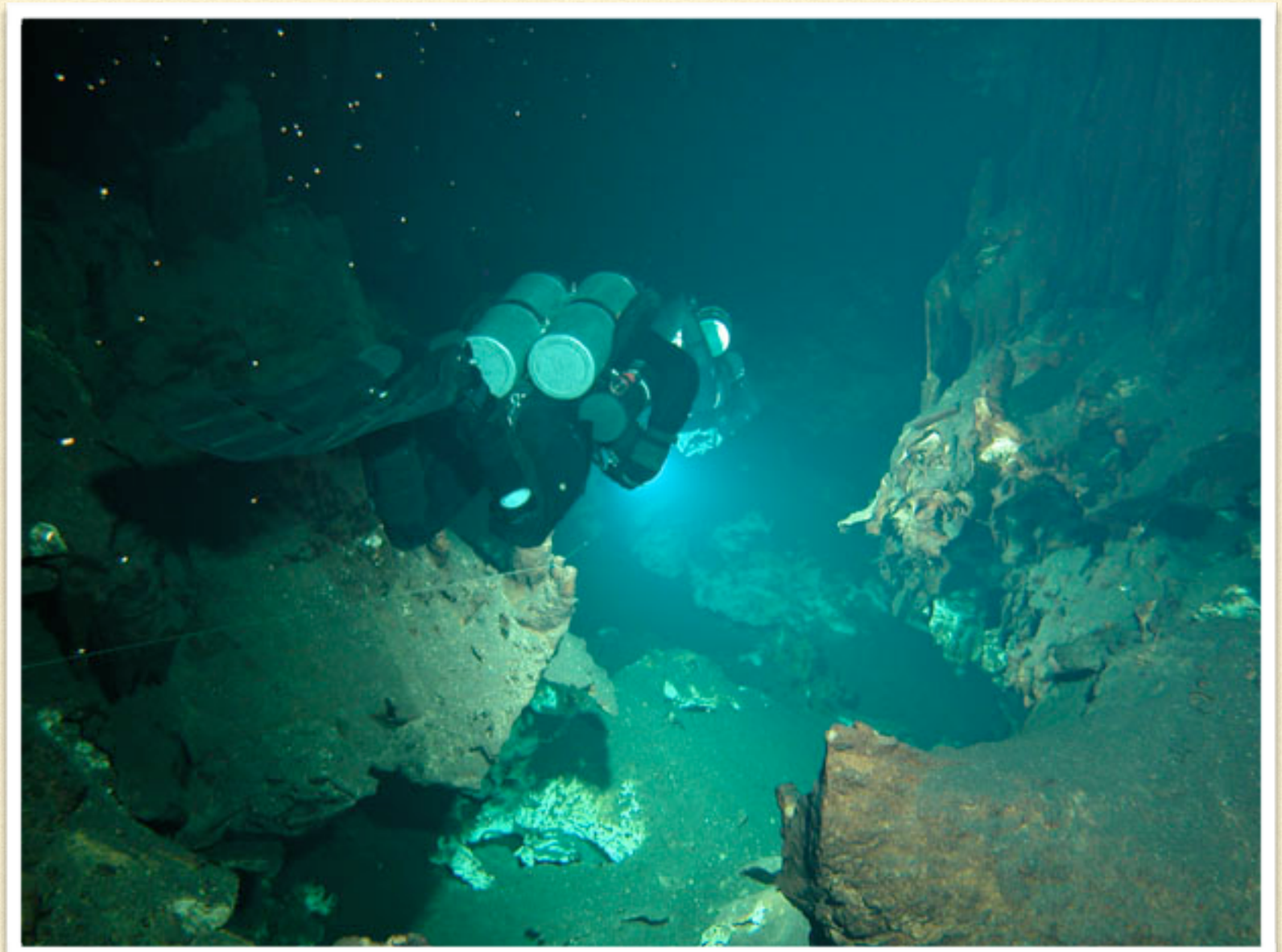
Why, What, How



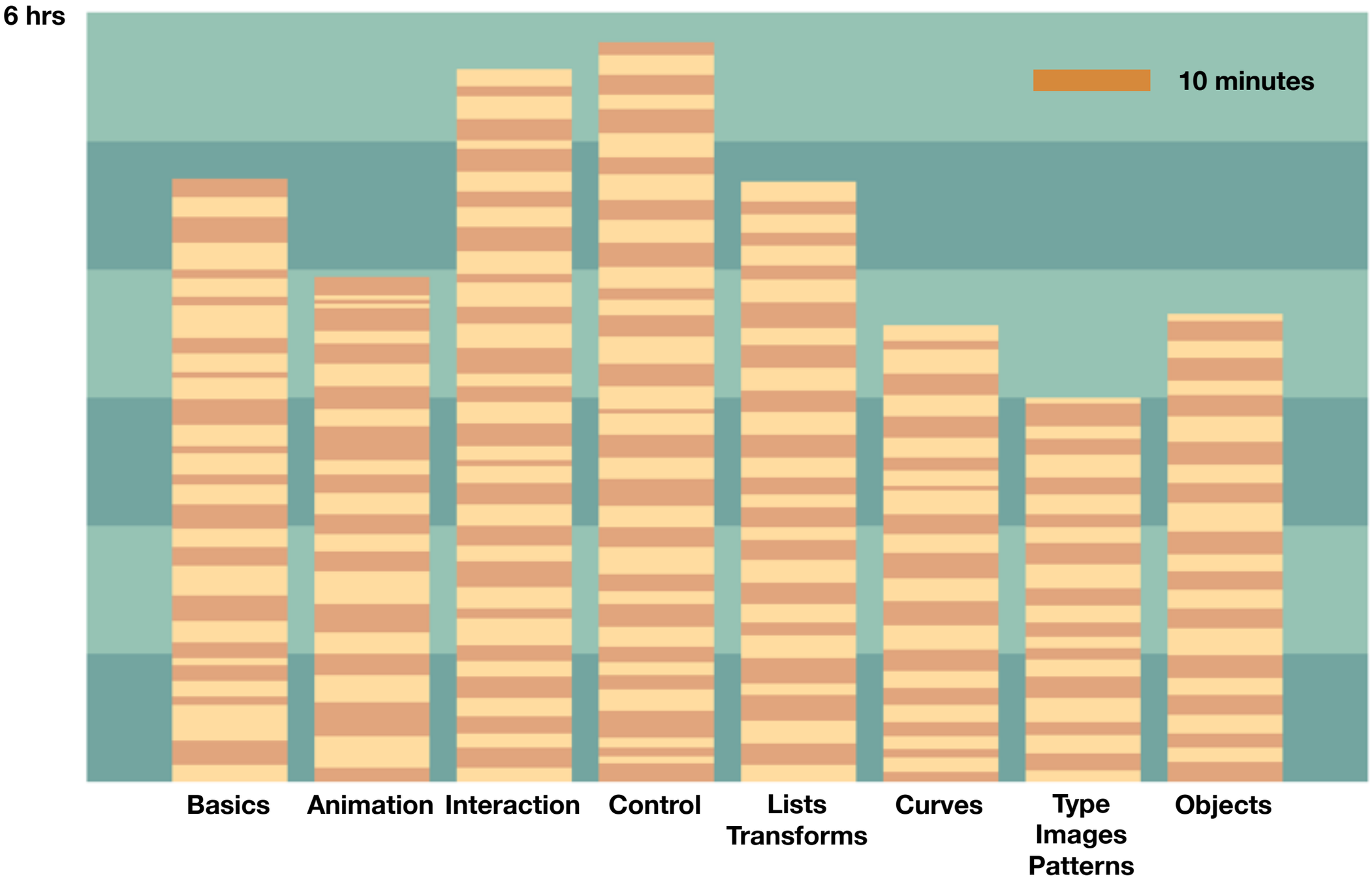

```
if ( berriesRemain ) {
   eatBerry();
} else {
   print("I ate them all!");
}
```

My Experience - External

My Experience - Internal



239 videos, 34.75 hours



Production Math

34.75 hours of final video

*** 100:1 production ratio**

= 3475 hours

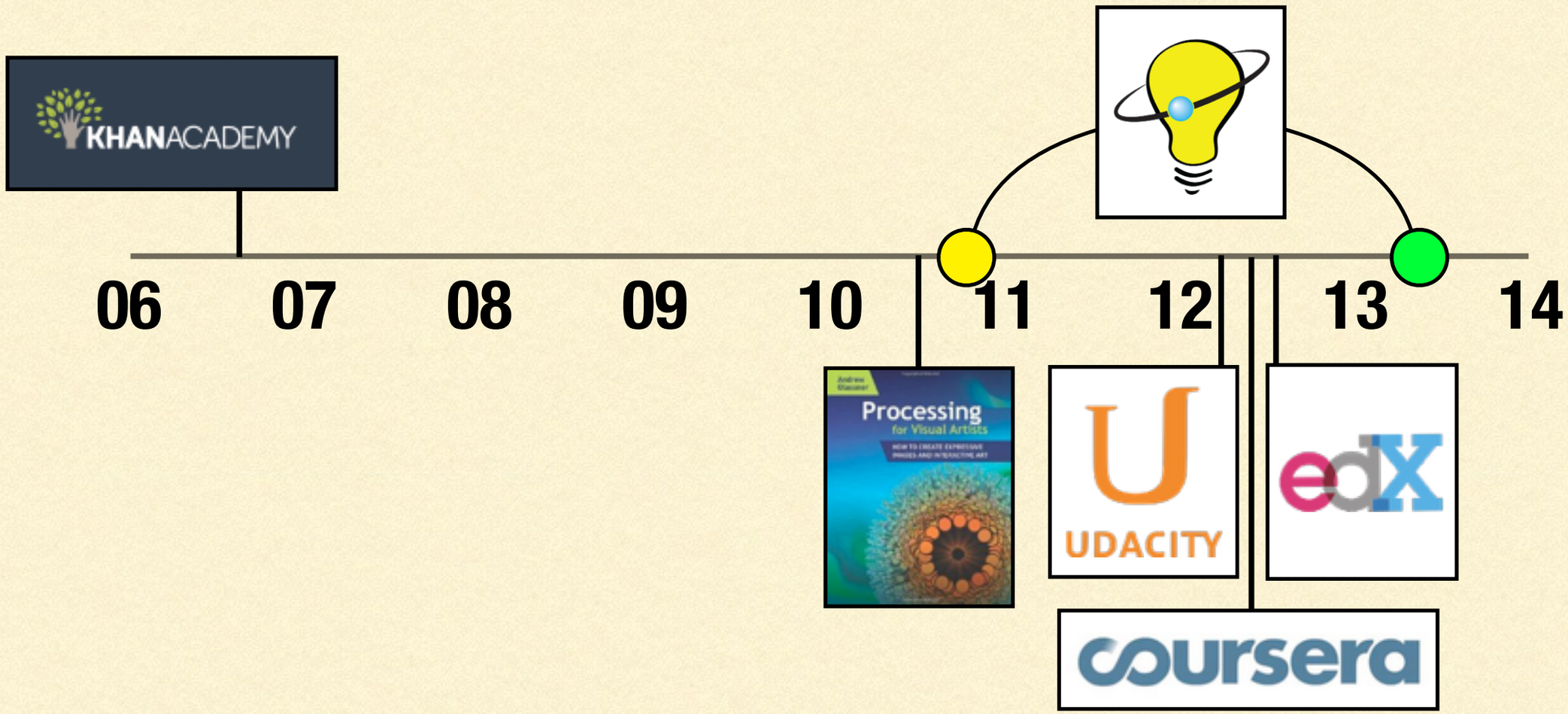
= 435 8-hour days

= 14.5 months full-time

Course Fantasy

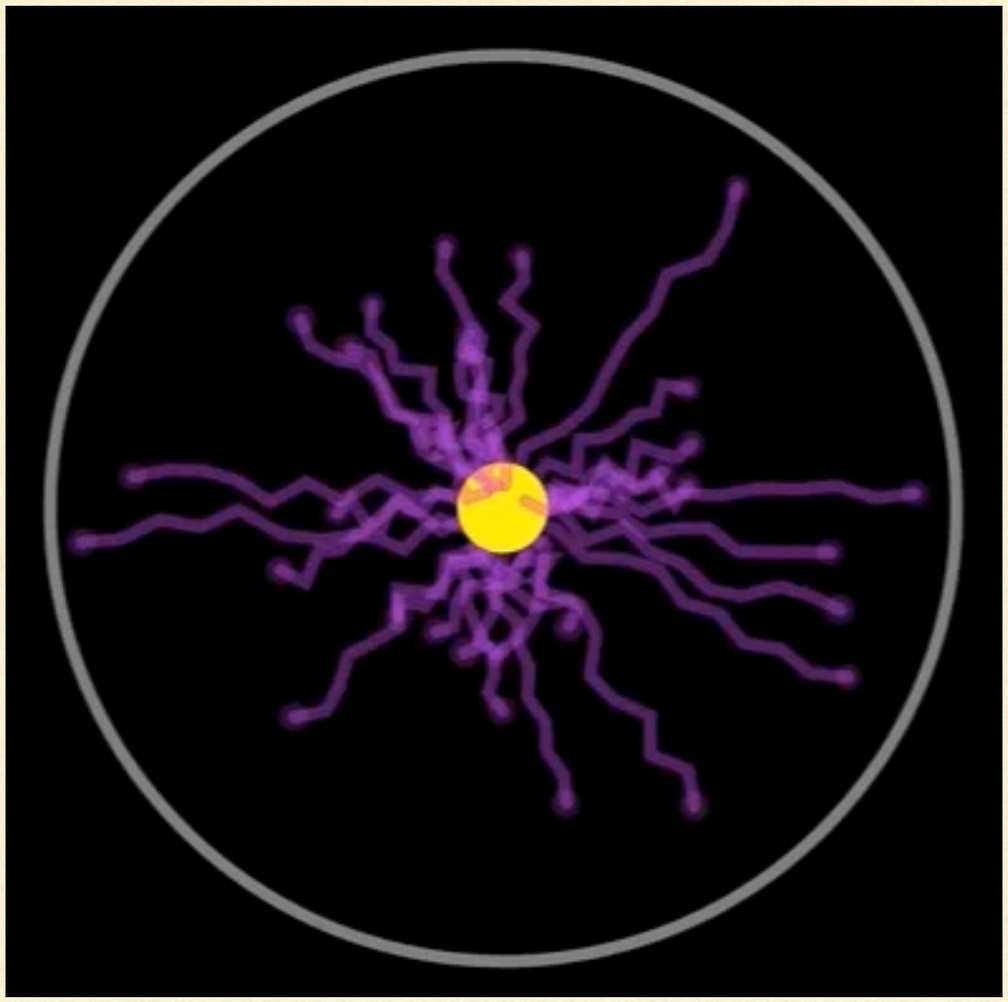
Coffee Shop Beta	**Live, live critiques**
Live Beta	**Online, video critiques**
Full Version	**Video critiques**
Self-Study	**No critiques**

Production Timing



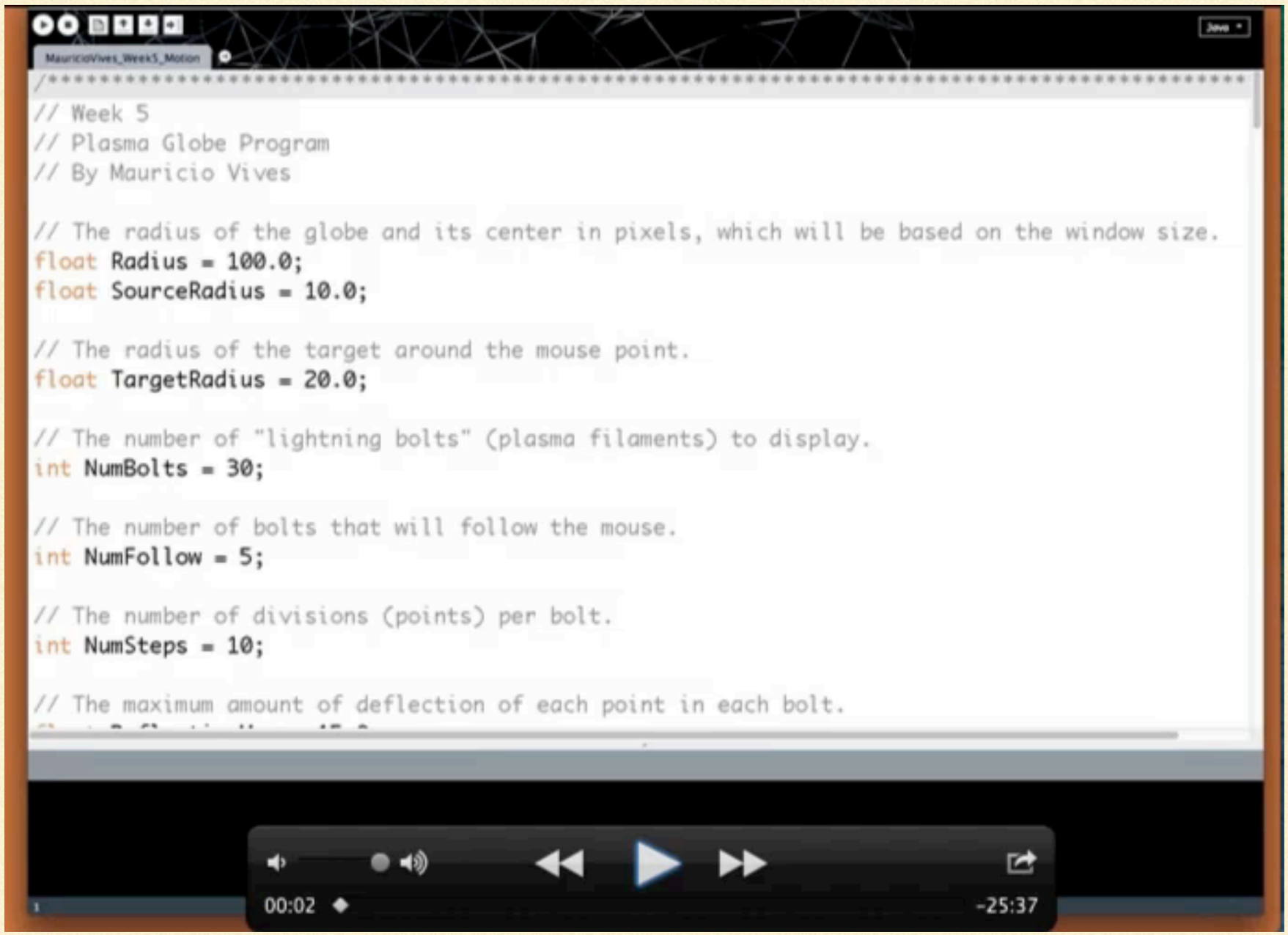
Individual Critiques

Homework



Holly Vives

Homework Critiques



Critique Reality

	hrs/person-week
Coffee Shop Beta	6
Live Beta	4-10
Self Study	0

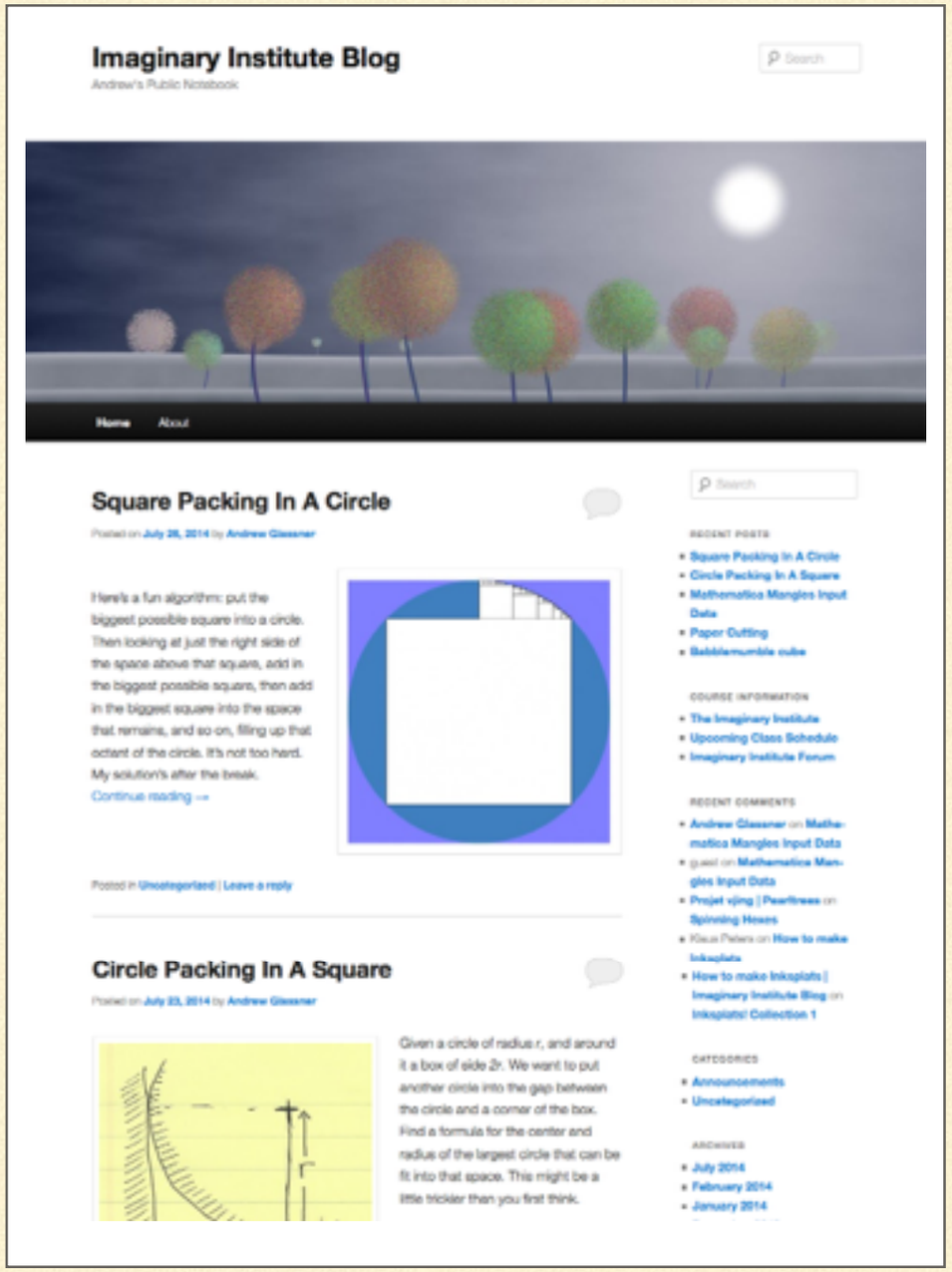
Course Reality

No critiques

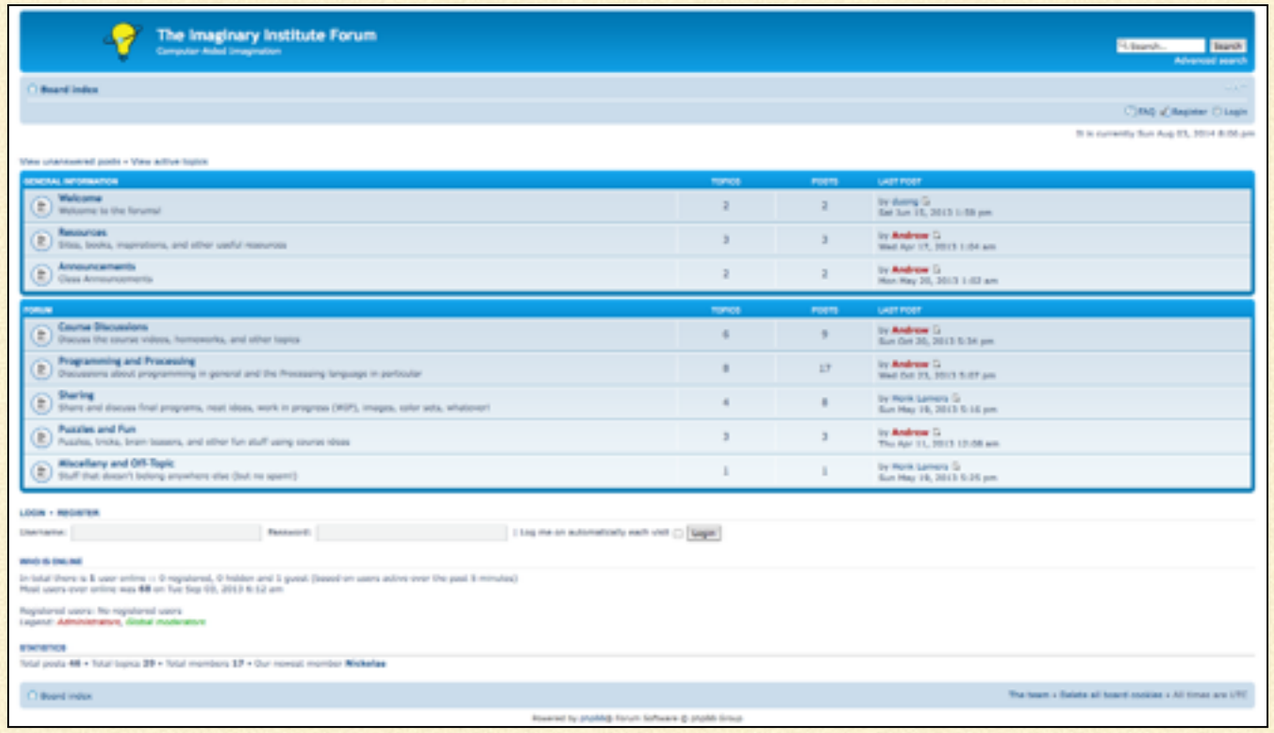
Self study only

First half free

Blog



Forum



- Critical Mass
- Seeding Topics
- Focused Groups

Conclusions

- **Massive fun!**
- **Massive work!**
- **Enormous investment**
- **Plan, plan, plan**
- **Set expectations**
- **Do what you love**

www.imaginary-institute.com

Forum

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Blog

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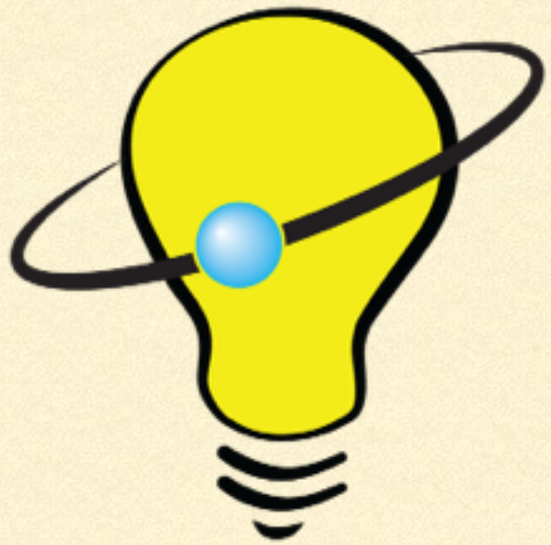
Contact andrew@imaginary-institute.com

Slides imaginary-institute.com/blog

Andrew Glassner

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