Animation
Animations

- Series of images presented in succession
- Gives the impression of continuous motion
- Mathematical interpolations can create animations
Animations can also be pre-rendered
  - Hand-drawn frames
  - Animation-specific programs (e.g. After Effects or Flash)

Sprites are two-dimensional images that depict a character or object

Sprites can be animated separate from the surrounding scene
Loading Animations in Processing

- Same principle as loading a single image into PImage
- Use of a frame buffer to hold sequence of PImages
  - Store images in animation order inside array
- Dynamically name loaded images to avoid hard-coding
  - nf() formats numbers into Strings (and can provide 0 padding, so order is consistent)
Drawing Animations in Processing

- Array index provides access to next frame in sequence
- Modulo operator allows for infinite frame looping
  - Remainder of one number divided by another
- `frameCount` system variable increments by one every frame
Sprite Example
Instapoll Question: Sprites

What image will be displayed when the sprite example is on frame 20?

- x_running-01.gif
- x_running-07.gif
- x_running-09.gif
- x_running-10.gif
- x_running-11.gif
Hands-on: Sprite Animations

Today’s activities:

1. Collect or create a sequence of images to use as a sprite
2. Within the `setup()` function of the sketch, load these images into an array. Use the `nf()` function within a for-loop rather than individually loading the images
3. Within the `draw()` function of the sketch, display the images in sequence at a given location
4. Use the modulo operator on the `frameCount` and number of frames in the sprite sequence to make the sprite infinitely loop
5. Experiment with `frameRate()` to change the speed of the animation