Last Time

• Lab 1 Recap
• Processing in 3D
  – Three dimensional lines/points/shapes
  – box and sphere, filled and wireframe
  – Basic lighting
Lighting

- Four major types available in Processing:
  - Ambient
  - Directional
  - Point
  - Spot
- Need to be included in the `draw()` to remain persistent in a looping program. Placing them in `setup()` will cause them to only have an effect the first time through the loop.
Ambient Lighting

• Create an even light of any color over the entire scene.

• Almost always used with other lights.

• `ambientLight(colorR, colorG, colorB);`
Directional Lighting

• Project in one direction.
• Cause strong lights and darks.

• directionalLight(colorR, colorG, colorB, directionX, directionY, directionZ);
Point Lighting

- Radiate from a single point is all directions.
- Think light bulb.

- `pointLight(colorR, colorG, colorB, positionX, positionY, positionZ);`
Spot Lighting

• Radiate in a cone shape with a given direction, location, and color.

• Think flashlight.

• `spotLight(colorR, colorG, colorB, positionX, positionY, positionZ, directionX, directionY, directionZ, angle, concentration);`
Other properties

- `lights();` sets defaults of:
  - `ambient(255, 255, 255)`
  - `directional(128, 128, 128, 0, 0, -1)`.

- `lightFalloff()` sets “falloff rates” for lights – think the spotlight concentration parameter.

- `lightSpecular()` sets specular colors for lights (light which bounces off the surface in the camera’s direction used for highlights).
Any Questions?