Next Meeting: Tuesday 11th @ 9am – roofing

**Order of Productions:**

Roofing

* Type: Simple Pop Up
* Markers: 13
* Cost: $2800

Evidence Collection

* Type: Simple Pop Up
* Markers: 10
* Cost: $2500

Animal Cell Diagram

* Type: Interactive (highlight / info pops up)
* Markers: 1
* Cost: $2500

Fetal Development

* Type: Interactive (highlight / info pops up)
* Markers: 12
* Cost: $6,000

**TOTAL: 13800**

Meeting Notes:

Generated markers: <https://shawnlehner.github.io/ARMaker/> (open with illustrator, convert to .psd without black border. [Make sure image size is highest for good quality.](https://jeromeetienne.github.io/AR.js/three.js/examples/marker-training/examples/generator.html)

Budget for Models: $200

**Evidence Collection: Procedures SIMPLE POP UP**

*Activity – Types of Evidence*

*LPSCS Site*

For this activity, you will need to make crime scene sketches. Each page should have one piece of evidence. The drawings on the page should look like crime scene sketches (<https://www.google.com/search?q=crime+scene+sketches&rlz=1C1GCEU_enUS821US821&sxsrf=ACYBGNT0MGY4gbcxZhnfkCTKElhgCPXm0g:1578502633409&source=lnms&tbm=isch&sa=X&ved=2ahUKEwjs5_bFvPTmAhVUBc0KHTwICRcQ_AUoAXoECBcQAw&biw=1680&bih=939>) that were taken as notes during the evidence collection process. This means that there is a single room sketch from above, or an outside area, or in the case of toxicological evidence there needs to be an autopsy drawing (<https://www.google.com/search?rlz=1C1GCEU_enUS821US821&biw=1680&bih=939&tbm=isch&sxsrf=ACYBGNQdopgfBqBDIgwM4tcinlbz1LdidQ%3A1578503421220&sa=1&ei=_QwWXvWCDZeutQbKu6H4Bg&q=autospy+sketches&oq=autospy+sketches&gs_l=img.3...9967.12841..12929...0.0..0.206.2336.0j15j1......0....1..gws-wiz-img.......35i39j0j0i7i30j0i24j0i131j0i67j0i10j0i10i24.bE2ZlnZk_Ps&ved=0ahUKEwi19cq9v_TmAhUXV80KHcpdCG8Q4dUDCAc&uact=5#imgrc=luMpFs7QY38TWM:>). Having the sketches will actually help reinforce the way crime scene investigators connect drawings to real spaces, so I think this is an important aspect of this activity.

When using the marker students would then see the “real” evidence in the 3d context of the space documented in the crime scene/autopsy drawings. The students will need to look at the crime scene sketch and the evidence and determine where to send the evidence for analysis based on the type of evidence.

Here are the different types of evidence that will need to be included:

* biological evidence
  + pool of blood or blood spatter
  + saliva on two filled cups (looks like they were in the process of drinking when crime occurred)
  + in a kitchen
* anthropological evidence
  + skeleton buried outside
* trace evidence
  + glass shards from a broken window, living room
  + piece of hair, in a bedroom
  + paint chips on a car, in a garage
* ballistics evidence
  + shot gun and shot gun casings, outside
* fingerprints
  + fingerprint on a weapon, in a living room
* narcotic evidence
  + drug paraphernalia (like cocaine and materials), in a bathroom
* toxicology evidence
  + this will need to be autopsy drawing, because this evidence is only collected from humans, so an autopsy drawing with the marker pulling up fluid in like urine collection containers and blood test tubes in the lab

**Advanced Animal Genetics**

*Student Handout – Animal Cell Diagram* **INTERACTIVE**

*Ag Site*

This handout will just be an animal cell diagram. With the following parts identified and labeled with the following with the information to allow a student to explore the animal cell and learn more about the purpose of each organelle in the cell.

3D examples of each of the parts:

* Mitochondria - <https://www.shutterstock.com/image-illustration/section-mitochondria-1008265135>
  + The mitochondria is responsible for performing cellular respiration, which means to break down nutrients from the cell and turn them into energy. The energy created by the mitochondria allows the cell the perform its necessary functions.
* Nucleus and Endoplasmic reticulum <https://www.shutterstock.com/image-illustration/structure-nucleus-rough-endoplasmic-reticulum-1231557910>
  + The nucleus stores DNA and controls the replication of DNA. In addition, the nucleus coordinates the growth, metabolism, protein synthesis and reproduction of the cell during its lifecycle.
  + The endoplasmic reticulum is responsible for creating, modifying and transporting proteins within the cell.
* Microtubules - <https://www.shutterstock.com/image-illustration/microtubule-3d-illustration-polymer-composed-protein-706740472>
  + Microtubules support a cell to give it shape. Additionally, they act as a route for other organelles to move throughout the cell.
* Ribosome - <https://www.shutterstock.com/image-illustration/structure-eukaryotic-ribosome-1033874101>
  + Ribosomes make proteins. They may be found attached to the endoplasmic reticulum or floating freely within the cytoplasm of the cell.
* Plasma Membrane - <https://www.shutterstock.com/image-illustration/cell-membrane-3d-illustration-473032237>
  + The plasma membrane is the wall protecting the cells organelle from the outside environment, additionally it regulates the materials that enter and exit the cell and contains markers which allow cells to both recognize and signal to one another.
* Centrioles - <https://www.shutterstock.com/image-illustration/centrioles-eukaryotic-cell-structure-1588892218>
  + The centrioles are small organelles which help the cell during mitosis and meiosis. When preparing for duplication, centrioles send threads to opposite ends of the nucleus, which pull the chromosomes within the nucleus apart and new nuclear envelopes appear.
* Lysosome - <https://www.shutterstock.com/image-vector/anatomy-lysosome-hydrolytic-enzymes-membrane-transport-1167927220>
  + Lysosome contain digestive enzymes in order to remove waste in the cells like worn out organelles, food particles, viruses or bacteria.
* Vesicles - <https://www.shutterstock.com/image-vector/exocytosis-vesicle-transport-that-carry-very-683271661> (There’s not a good 3d version of this, but I do like the fact that this gives an idea of how the vesicle works)
  + Vesicles are sacks within the cell which can be used to transport compounds from one cell to another, in addition to secreting hormones, degrading worn-out cell parts and regulating buoyancy of the cell.
* Golgi Apparatus/Complex - <https://www.shutterstock.com/image-illustration/golgi-apparatus-part-cell-345376952>
  + The golgi apparatus (sometimes also called the golgi complex or golgi body) is responsible for modifying, sorting and packaging proteins to be secreted by the vesicles. The golgi apparatus also creates lysosomes and transfers lipids around the cell.
* Vacuole - <https://www.shutterstock.com/image-vector/components-human-cells-vector-illustration-lysosome-749645797>
  + Vacuoles are the storage bins of the cells. They store food or nutrients required by the cell, likewise they can also store waste which might harm the cell if not contained.

**Human Development: Fetal & Infant (INTERACTIVE)**

*Activity – Fetal Development*

*Health Site, FCS Site*

The handout includes a chart for fetal development. After thinking about it, if you can adjust the models to fit this chart. These will become flashcards. The flash cards will just need to have the description of what is being developed in the baby. Then the marker will have a model of the baby, labeled with the age with options to see the different body parts which are described developing that week as being highlighted when mousing over.

You will likely have to do some additional research on this one. I adid

Here are some reference materials for the stages of fetal development:

3 Weeks - <https://www.shutterstock.com/image-illustration/embryonic-phase-embryo-inside-uterus-3-1470350279>

4 Weeks - <https://www.shutterstock.com/image-illustration/pregnancy-4-weeks-embryo-middle-part-751105366>

5 Weeks - <https://www.shutterstock.com/image-illustration/human-embryo-end-5-weeks-234278743>

6 Weeks - <https://www.shutterstock.com/image-illustration/6weeks-human-embryo-scientifically-accurate-3d-1073644520>

7 Weeks – <https://www.shutterstock.com/image-illustration/7weeks-human-embryo-scientifically-accurate-3d-1110267386>

8 Weeks – <https://www.shutterstock.com/image-illustration/3d-rendered-medically-accurate-illustration-fetus-458873770>

14 weeks - <https://www.shutterstock.com/image-illustration/3d-rendered-medically-accurate-illustration-fetus-458874223>

18 weeks - <https://www.shutterstock.com/image-illustration/3d-rendered-medically-accurate-illustration-fetus-458874253>

24 weeks - <https://www.shutterstock.com/image-illustration/3d-rendered-medically-accurate-illustration-fetus-458875597>

32 weeks - <https://www.shutterstock.com/image-illustration/3d-rendered-medically-accurate-illustration-human-1470847553>

36 weeks - <https://www.shutterstock.com/image-illustration/3d-rendered-medically-accurate-illustration-fetus-458875615>

39 weeks - <https://www.shutterstock.com/image-illustration/3d-rendered-medically-accurate-illustration-fetus-728303548>

**Installation: Roofing SIMPLE POP UP**

*Activity – Styles of Roofs*

*Architecture Site*

This is an existing handout, but I was thinking the current 3D graphics could be what would appear in AR. The activity will have students look at the AR version of the roofing style, draw a drafting sketch of the roof style. Then at the end, they will need to list out the types of roof styles utilized in the combination graphic from the original handout.