Spring 4-17-2023

Lesson plans in Astronomy, Ecology and Biology

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Personalize as needed! These are just suggestions that can be used as a starting/reference point.

Astronomy

➔ Solar system model

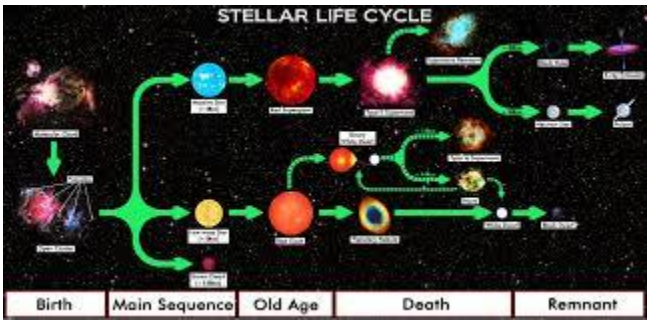
1) Give each student one long skinny wood craft stick and 10 short strings (including the Sun), tape each piece of string to the craft stick, add Sun + planets*
2) Give each student one black poplaster paper and add Sun + planets directly on poster*
3) Give each 10 student styrofoam balls (paint/decorate as desired) and nine long skinny wood craft sticks, with one ball representing the sun (in the middle) and the other nine balls representing planets, connected to Sun with craft sticks

** for Sun + planets, use styrofoam balls), circular pieces of paper, or anything else convenient and available; be sure to label; can paint/decorate as desired; can correspond each planet with a relative planet size*

➔ Planetarium field trip - plan in advance!

➔ Life cycle of a star

1) Use flowchart to represent possible stages of star life



➔ Moon phases model / journal (can show that the Earth rotates on its axis, causing moon phases)

1) Can be short-term project → reference solar system model for moon phase model
2) Can be a long-term project → have students keep a "journal" or give handout, with them recording moon phase every day for one month

- ➔ Constellation identification
    1) Make constellation cups! Give each student/group a few paper cups and printouts of constellations, have them poke holes in bottom of cup matching constellation pictures and label cups, turn off lights, and shine flashlight through each cup towards a blank wall to see “at-home constellations”

Ecology

- ➔ Planting flower / vegetable plants (long-term experiment)
    1) Give each student a paper cup filled with dirt and seeds that they assembled in class w/ a handout indicating how to take care of the plant at home and ask for pictures periodically
    2) Grow them in class and have students observe plant’s life cycle over the course of the school year
    3) Compare/contrast what helps plants grow and what doesn’t (sunlight vs. no sunlight, water vs. Gatorade, regular water vs. sugar water, etc.)
- ➔ If funds/access to environment permit, terrarium (requires airtight glass jars (i.e. mason jars), clean sand/gravel, plants, rocks, soil, water, and activated charcoal)
- ➔ Food web diagrams (can be led by the students as opposed the teachers - let them figure out web, and then correct them / ask questions, as needed)
- ➔ Create a compost at your school! (long-term experiment - have students collect applicable waste once a week/month at lunchtime, and add to a usable compost pile in school yard)
- ➔ Make water cycle diagram

Biology

- ➔ Life cycle of an animal
    1) Metamorphosis of a butterfly (get a caterpillar as a “class pet” and observe over the course of the school year, make diagrams on paper plate/piece of paper divided into four sections, etc.)
- ➔ Evolution
    1) Show predator/prey relationships (i.e. scatter rocks/jellybeans/green pieces of paper on classroom and see how many each student finds, then scatter outside

in grass and see how many are found [should be less found in grass], and demonstrate how some prey in the wild hide from their predators)

2) https://ucmp.berkeley.edu/education/lessons/its_all_relative.html

➔ Identifying parts of a human body

Geology

➔ Comparing/contrasting different types of rocks

➔ Museum field trip - plan in advance!