Classroom Teacher Preparation

Anatomy/Physiology 22: Fingerprinting

Please use the following to prepare for the next SfS lesson.

Description:

Students self-discover which type of fingerprints they have before investigating the various ways of leaving behind, collecting, and analyzing prints. Students will explore fingerprint inking, dusting & lifting, and analysis.

Lesson Objectives – SWBAT ("Students Will Be Able To…"):

3rd-8th *(Note: There are not DCI/SEP/CCC that specifically apply for older students, but all students can enjoy and benefit from this lesson)*

- Identify patterns of fingerprints
- Differentiate the three ways of leaving fingerprints: plastic, patent, and latent

Disciplinary Core Idea (DCI)

LS1 From Molecules to Organisms-Structures & Processes - LS1.A Structure and Function

- (3rd-5th) Organisms have both internal and external macroscopic structures that allow for growth, survival, behavior, and reproduction.

Science & Engineering Practice (SEP)

Planning and Carrying out Investigations

- (3rd-5th) Evaluate appropriate methods and/or tools for collecting data

Crosscutting Concept (CCC)

Patterns

- (3rd-5th) Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena and designed products.

Preparation:

No special preparation is needed for this lesson.

Room Set Up for Activities:

Students will work individually to explore their own fingerprint patterns but will share materials in pairs or small groups.

Safety:

No safety precautions apply to this lesson.

Related Modules:

This lesson may be taught as part of a sequence or group of related modules on **Forensics**. Modules include:

Anatomy/Physiology 3: DNA Extraction – Students critically think about the process of DNA extraction using a model and then each student will get to extract DNA from a strawberry (or other plant).

Anatomy/Physiology 6: Blood Typing – Students learn what determines a person's blood type through a blood-typing activity using simulated blood. From the results, the class will discuss which blood types are compatible and what happens if you give incompatible blood to a patient during a blood transfusion.

Chemistry 8: Design a Chromatography Experiment – Students consider what type of questions paper chromatography can be used to answer, and design and carry out at least one chromatography experiment. While the experiment is running, the students will participate in a discussion of chromatography and interpreting chromatograms

For other module sequences and groups, look here: www.sciencefromscientists.org/sequences

Standards Covered:

Please click the following link to our website to review the standards covered by this lesson, listed by state: www.sciencefromscientists.org/standards/

Lessons are matched to both national NGSS and local state standards.

After Our Visit:

Extend this lesson by visiting Rice University's fun CSI games.

Access this Extension activity by visiting the Classroom Post found on our website at sciencefromscientists.org/cohorts. Use the name of your school/cohort and password to log in.

To help Evaluate, check out our Open Response questions online at sciencefromscientists.org/open-response-questions. They are freely available for all of our lessons for current teachers. Use the password supplied by your instructor to log in.

Additional Resources:

- Activity*:* Fingerprint Challenge - http://sciencespot.net/Media/FrnsScience/fingerprintchall.pdf
- Fingerprint facts (1:14) - https://www.youtube.com/watch?v=c4b9OsH_DX0
- Which Fingerprint is Which? (0:39) - https://www.youtube.com/watch?v=Nl9j5JE-e4Q ‘
- Purpose of Fingerprints is Questioned - https://www.livescience.com/3684-purpose-fingerprints-questioned.html
- Koalas Have Human-Like Fingerprints - https://www.livescience.com/14007-koalas-human-fingerprints.html