

# LOUISIANA SCIENCE STANDARDS INTRODUCED OR REINFORCED DURING TREES AND TRAILS

## 4<sup>TH</sup> Grade

### FROM MOLECULES TO ORGANISMS: STRUCTURE AND PROCESSES

- **4-LS1:** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.  
**UE.LS1A.a:** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.
- **4-LS1-2:** Construct an explanation to describe how animals receive different types of information through their senses, process the information in their brains, and respond to the information in different ways.  
**UE.LS1D.a:** Different sense receptors are specialized for particular kinds of information, which then may be processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions.

### EARTH'S SYSTEM

- **4-ESS2-1:** Plan and conduct investigations on the effects of water, ice, wind, and vegetation on the relative rate of weathering and erosion.  
**UE.ESS2Aa:** Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.
- **4-ESS2-3:** Ask questions that can be investigated and predict reasonable outcomes about how living things affect the physical characteristics of their environment.  
**UE.ESS2E.a:** Living things affect the physical characteristics of their environment.

### EARTH AND HUMAN ACTIVITY

- **4-ESS3-1:** Obtain and combine information to describe that energy and fuels are derived from renewable and non-renewable resources and how their uses affect the environment.  
**UE.ESS3A.a:** Energy and fuels (fossil fuels, wind energy, solar energy, hydroelectric energy) that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.

## **ANCHOR PHENOMENA THAT CAN BE INTRODUCED IN THE CLASSROOM (PRE-TRIP OPTIONS)**

1. Link to a video on: Cameos: <http://www.biographic.com/>. This video shows the adaptations caterpillars have made for survival.
2. Link to a video on: Nature's best Camouflages (The "Where's Wally" of nature) <https://www.youtube.com/watch?v=EJGtN-igCu8>
3. Chinese Privet, nutria, and European starlings: Invasive or native species?
4. The leaves of a plant are the plant's "chemical laboratory."
5. The root system is the most important structure of a plant.
6. Animals rely on the sense of smell or taste.
7. Why do some animals migrate? Link to a video on sea turtle migration? <https://www.bing.com/videos/search?q=Where+Do+Sea+Turtles+Migrate&&view=detail&mid=889BC4D3547151973D85889BC4D3547151973D85&&FORM=VDRVRV>
8. Natural and man-made disasters impact habitats.

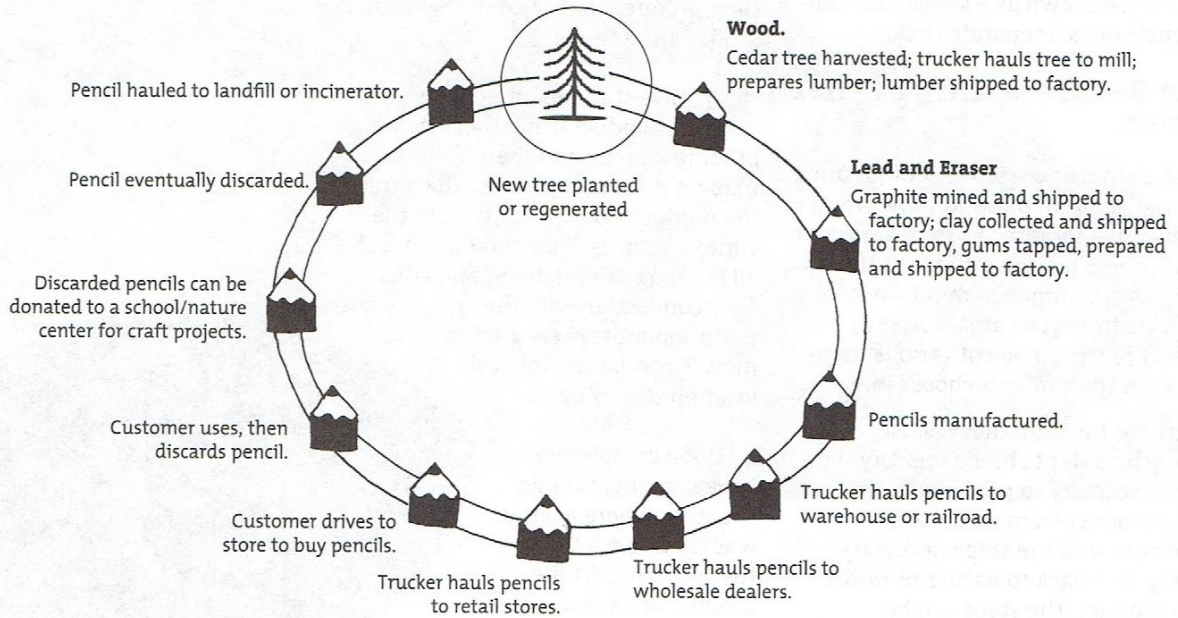
## **ACTIVITIES TO EXTEND CONCEPTUAL UNDERSTANDING OF PERFORMANCE EXPECTATIONS**

1. This is a link to a website where you can track the migration of organisms, (ruby-throated hummingbirds, monarch butterflies, songbirds and other migratory animals. There are newsletters, activities and other teacher resources: <https://www.learner.org/jnorth/>
2. Link to view live cams on how different organisms respond to seasonal changes: <http://www.learner.org/jnorth/livecam/index.htm>
3. Write the following names of organisms on the board: bats, ladybug, frogs, bees, fireflies, birds, and ants. Which organisms use sound to communicate? What are some other ways that organisms communicate with each other?
4. Get your students involved in school gardens. You can study the life cycle of plants, observe the different species of insects and other organisms that become part of your garden's ecosystem. The LSU AgCenter website has newsletters, publications, projects, and funding sources to for designing and planting a school garden. The link is: [http://www.lsuagcenter.com/topics/lawn\\_garden/school\\_gardens](http://www.lsuagcenter.com/topics/lawn_garden/school_gardens)
5. Ask the students how the following organisms get food for energy: squirrel, fungi, earthworm, butterfly, human, grass. Link to producers, consumers and decomposers: <https://www.slideshare.net/sth215/producers-consumers-and-decomposers>
6. Research a specific product that people depend on in their everyday life, and follow the steps needed to produce the finished product. Attached is an example

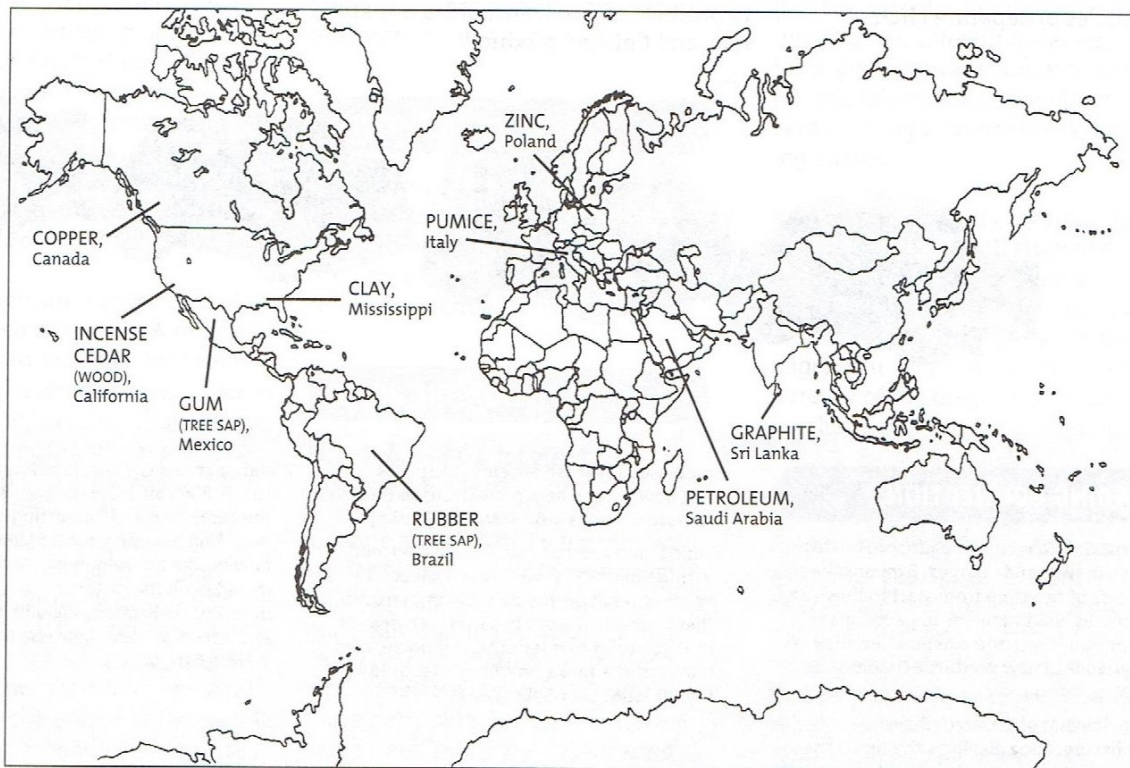
of the “A Pencil’s Life Cycle” of a pencil and a student worksheet for the students to trace the steps needed to produce their finished product. Ask the students if the energy source(s) was renewable? What about the transport of the raw materials to produce the finished product? (Examples of some products that come from trees: Furniture, books, rubber products, syrup, crayons, chocolate, nuts, fruits, and cinnamon).

7. An excellent book that describes the steps needed to make a packaged bar of chocolate: Nelson, Robin: *From Cocoa Bean To Chocolate (Start to Finish)*. Learner Publishing Group 2003.

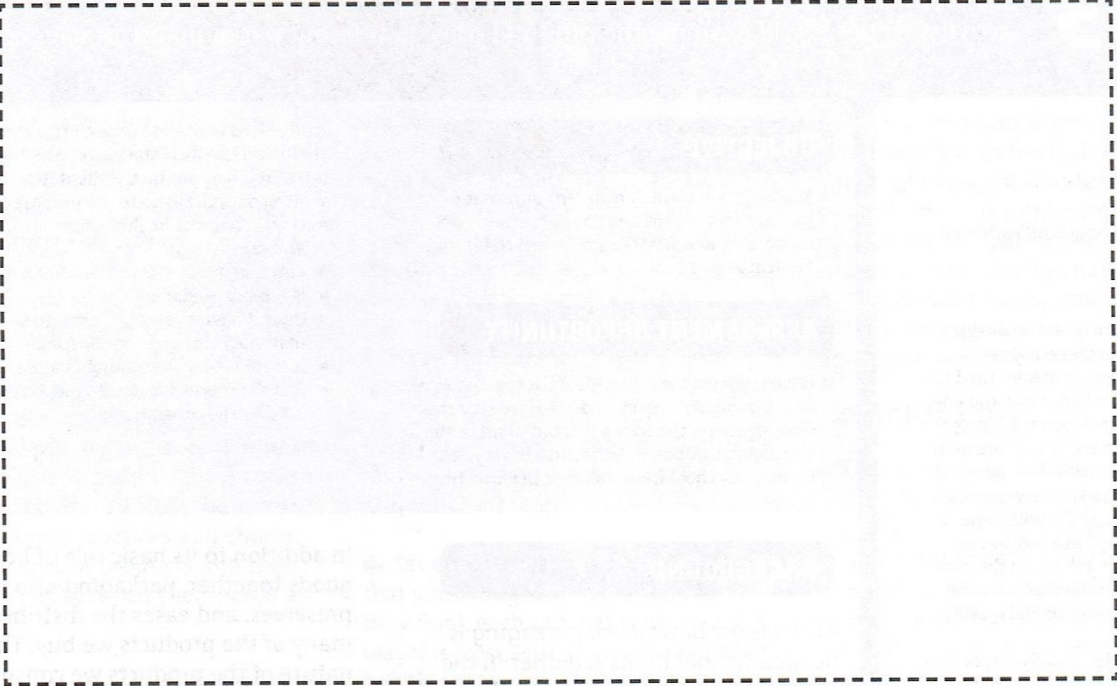
# A Pencil's Life Cycle



# Materials that go into a Pencil



# Cycle of Life for Your Product



# Materials for Your Product



