

TERRARIUM RECIPE CARD

Tips and Tricks

The Importance of Live Materials in the Lab:

If you are considering Live Animal Studies in your classroom you are to be commended. According to the NSTA (National Science Teachers Association)

"NSTA supports including live animals as part of instruction in the K-12 science classroom because observing and working with animals firsthand can spark students' interest in science as well as a general respect for life while reinforcing key concepts as outlined in the NSES."

This set of Terrarium Recipe Cards were created to help teachers be successful teaching with terrariums and aquariums in the classroom.

Terrariums and Aquarium Environments vs. Classroom Pets: Many times animals intended for lab studies often will become a classroom pet or mascot, and while we are all in favor of treating animals well, there are numerous ways that you and your students can get more out of your live animal experience by studying an animal in an environment that mimics the real world. You will find that these Terrarium Recipe cards will help you mimic a realistic environment for your creature. In turn, your animal and plants should be used for observation purposes. Try to avoid introducing situations that wouldn't normally occur, including the taking out and holding specimens. Without human influence, students can observe and record a creature's natural behavior.

Generating Questions and Designing their own data collection: Have students generate questions about the animal when first getting started. Use those questions to guide investigations and research of the environment and animal. Have the students design their own data collection when observing the environment in the classroom and report their finding to the class.



GETTING STARTED WITH LIVE MATERIALS

Safety First: Always wear or use appropriate safety equipment, e.g., gloves, goggles, and wash your hands before and after working with specimens. Students should not hold animals, build and or clean terrariums unless proper precautions are taken to protect students and animals. If students help, make sure they are trained on how to handle the animal. Animal studies should always be done with ADULT SUPERVISION.

Animals do try to escape and will try to bite while trying to get away. Make sure you understand the safety involved with your animal, (i.e., tarantula stings, animal bites, etc.) The animals described in these cards are safe to use and observe in your classroom as long as the proper precautions are taken. Animals such as reptiles and amphibians can harbor diseases like salmonella. Hand washing is a must for classroom animal observations. Young children, women who are pregnant and people who have weak immune systems should not come into contact with reptiles or amphibians.

Arrangements for Animals on weekends, vacations and summers: Make arrangements for electricity to be on during weekends to keep pumps and heaters working, otherwise you may have to make arrangements for the care of your animals. Students and parents can be trained to take animals during breaks with the understanding that they are responsible for the health of the animal. Some districts have a live materials center that can care for animals during breaks. Never release lab animals into the wild after a study. Many lab creatures can become invasive to local environments. Sometimes local pet stores will take lab animals as pets or food for other creatures.

Build Your Skill, Start Small: Although having animals in the lab can be exciting for both you and your students, each habitat requires care and upkeep. Be realistic about the time that you and your students can commit to having environments in the classroom. Too many creatures infringe on planning time and teaching Science is prep intensive. Also keep in mind that animals require food, water and filter changes and bedding changes that, if left unattended, can cause bad odors, unwanted bacteria and even death of your lab animal.

Once you understand the care of simple animals and environments you can move on to more complex creatures. Some animals require special lighting, (UVA, UVB) special temperatures and /or humidity. Try not to take on a high maintenance animal until you are ready. All of your Life Science content standards can be taught with the simplest of environments. All it takes is some inquisitive kids.

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Materials: Make sure you have all the materials to make your habitat before you purchasing or bringing in the animal. The success of your terrarium is entirely dependent on meeting the needs of the living things inside it. This especially includes any heaters, lighting, and treated water that you may need in order to keep your animals and plants alive.

Cleaning Tanks and Enclosures: It is best to keep the same types of animals in the same container or aquarium for example try to avoid putting fish in an aquarium that previously housed a lizard. If you don't have a choice, there are spray disinfectants that can be used to disinfect aquariums and terrariums so that they can be used for other animals. Follow directions for the disinfectant and make sure that the container is rinsed thoroughly leaving no chemical residue behind. Never use soap or detergent on a tank, especially plastic containers, because they can absorb the chemicals and leach them back into the environment when in contact with water.

Mineral deposits on Aquariums: Mineral deposits left in tanks is common, especially in areas where water has a high mineral content. If your tank has cloudy mineral deposits you can remove the deposits by scrubbing with a clean towel or sponge (one that hasn't been in soap) and using salt as the abrasive. If the deposits are thick, you can soak the tank in a solution of water and white vinegar. Be sure to rinse the tank thoroughly.

Cleaning food and water dishes: Algae and bacteria can build up on food and water dishes. Be sure to use salt as an abrasive to scrub dishes and rinse thoroughly with water. Again, do not use soap or detergents to clean food or water dishes.



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Water: Make sure that you have water conditioner or RO (reverse osmosis) water handy because most animals (including insects) cannot handle the chlorine used to treat water for human consumption. RO water and Distilled water are similar in quality, but RO water is less expensive. It is sold as "drinking water". In a pinch, you can use tap water with animals if you allow it to sit overnight.

Soil: We use Eco Earth as our soil of choice for building terrariums for several reasons: Many potting soils are treated with chemicals that can include insecticides, growth chemicals, etc. On the other hand, using soil from outdoors or reused soil from another terrarium can host harmful bacteria and eggs or larva from unwanted creatures. Eco Earth is a coconut husk based soil that is free of harmful bacteria and is highly versatile, it can even be used to host animals that burrow, such as earthworms. However, some environmental studies ask for outdoor soil to host animals captured in their natural habitat. If you are using this type of soil, remember to return the soil (as well as the animals captured) back to their environment after the study. Do not reuse soil.

The Best Place for your Terrarium or Aquarium: It depends on the animal needs and environment you are creating. Basic things to consider include electrical outlets, air conditioning and heating vents and student traffic within the classroom. Sunny windows can be good for animals like lizards who need to sun themselves, however, too much heat or sunlight can dry out environments. When trying out areas to place the terrarium be sure to provide an escape area within the environment to give the animal shade or to hide from things that startle them (like tree bark or a cave). Also keep in mind the weight of water, gravel or soils in aquariums, choosing a sturdy table or wide counter can avoid a mishap.

Food: Predators such as lizards and frogs need to hunt live food like crickets. In fact many small predators will not eat insects killed for them. If your animal requires live food, that live food will also need food and a place to live to keep them such as a cricket keeper. You can purchase feed insects in pet stores. Be careful when using insects from outside as they may be exposed to insecticides. Special foods are available to "gutload" insects so that they are more nutritious, or you can dust them with calcium powder. Calcium powder provides calcium for shell and bone growth that animals would normally get in the wild through rock in the soil. Insects usually need a grain like oatmeal for food and a water source like a slice of potato or apple. Use nutritious greens such as Romaine lettuce rather than iceberg to feed herbivorous animals. Remove any rotting foods from terrariums.