

## **Unit Nine – Design Your Own Unit: All About Books in Science: Plants and Trees or Animals**

### *May*

Spring is the perfect time to conduct a unit of study on learning and writing all about things in nature. By May children will be itching to shed their winter coats and go on discovery walks, noticing the pink and white blossoms on trees, newly sprung flowers, birds and butterflies.

Our youngest writers are full of curiosity about the world. They notice the tiniest details around them – cracks in sidewalks, markings on leaves and bugs – and they ask questions: “How do dogs have puppies? Where does rain come from?” They are big collectors, gathering rocks and seashells, insects, twigs. They conduct experiments, dissecting worms, setting up jars of things and watching how the contents change over time.

By now children will be excellent observers, they will have the language of poetry fresh in their minds and they will be eager to put back on their scientist hats, as you ask them to become experts once again.

### Before the Unit Begins

The first choice you will want to make is to decide on a class study. This month, if you choose to align yourself with New York City’s science standards, you may choose a unit on Trees Through the Seasons (Unit 2), or Animals (Unit 3). If you are out of the city, you may reference your local state standards to find a unit that has many possibilities for writing. Either way, you will likely want to make a choice that will allow your children to have lots of hands-on, real-world experience with the topic of study during science workshop time before and during this writing unit.

After an entire year of a rich writing workshop, you can expect your children to be deeply independent and masters of choice. It will be important, therefore, that even within a common class study, there are still choices and options for children to explore their own interests and follow-up with their own questions. Most teachers will choose to take inventory of the materials they have— perhaps FOSS, SCIS or Insights kits, other materials that might be uncovered in some closet or are housed in the science room—or decide to take their science and writing workshops out-of-doors (or both!) to make sure that they have enough diversity of materials within a unit to allow for topic choice.

There are infinite possibilities for how this unit might go. You could choose one big topic for the whole class, such as “Baby Animals Are like Their Parents,” or “How plants change from winter to spring.” Or you might instead decide that each child will become an expert on a different animal, with some children studying mice, while others study rabbits, or goldfish. Children can consider how different animals are alike and how they are different, where they live, what they eat, and so on.

You might want to do a little work in science before the unit launches, to fill children up with some information, vocabulary and new ideas about the topic by giving them real life experiences with the topic. Some teachers start by taking a trip outside the classroom, to the park, to a local destination, or even on a full-blown field trip – to the zoo or a farm. Others show a brief video about the topic, pausing it to turn and talk just as we would during a read aloud. Or you might teach the children some hands-on lessons in science, teaching them to identify animal characteristics, to observe the traits an animal inherits from its parents, or to conduct an experiment related to the topic – what happens when you give a mouse cheese, or how long it takes the class pet to get through a maze. You'll have to use your imagination a bit; obviously, you won't be able to fill your classroom with all types of animals (and certainly not the bigger, often dangerous ones that children often find fascinating), but you can certainly fill your shelves with books on animals and, as suggested above, you can arrange trips to parks to watch birds and collect insects or to a zoo or a farm to observe animals such as cows, tigers, crocodiles and bears. For sure, you'll want to read aloud lots of great nonfiction related to the topic to get children's thoughts churning.

In addition to the goals you may have for your children as scientists, you will also want to think about the goals you have for your children as writers. Children will again be returning to All About books, a familiar structure, but now is the time to bring new depth and sophistication to that writing. It is likely that you will expect that children write *many* all about books about a topic or topics of interest across this month. They will continue to strengthen their skills as researchers, looking closely at their world, and now you can teach them to elaborate adding many more words on a page, and more chapters in their book. You could also teach them to focus a bit, so instead of writing *All About Trees*, they could write *All About Flowering Trees* or *All About Cherry Trees*.

### Beginning the Unit

You'll likely begin by showing children the booklets that they'll use to zoom in on one topic and write page after page about that topic. Excited by all of the materials, children will want to jump from one topic to the next: from the grasshopper to the leaf, to the branch, to the cocoon. Your first lessons will teach them to take their booklets and take one topic and think about how their book will go. If they write about the grasshopper, how can they write three whole pages about a grasshopper? Maybe they'll write a page about what it looks like and a page about what it does and a page about where it lives. Or maybe they'll use their scientists' tools to look closely at parts in order to write a page about the antennae and a page about its legs and a page about its body. Either way, you'll teach your children to stay long with one topic before moving to the next, because they needn't worry—they'll be making many many books this month!

You could also choose to look at a few mentor texts: well-loved science books that fill the shelves of your library, and invent appropriate paper choices for the kind of sketching and writing kids could do. You could simplify the paper choices and offer kids one or two kinds of paper that could be used for lots of things, or you could make available paper for different purposes: one kind for making diagrams and charts, paper with lines at the top for questions a box in the middle for a diagram and lines at the bottom for

hypothesis, or even paper for making timelines if you're looking at growth or change over time. You might think of their work as a collection of many kinds of writing that is saved in a special folder (or box) across the unit.

In November, children learned to look closely at something in their world, recording their observations on researchers' notepads or clipboards or scientists' books. They learned to notice colors and shapes and patterns and to draw detailed pictures of what they observed, writing labels and words and sentences like 'I see the leaf *that is* on the tree,' 'I see the acorn *that is* on the grass,' 'I see the pinecone *that is* under the tree.' Children made little books of their observations, presenting their discoveries as lists. Now you'll teach children how to elaborate on their thinking. They won't just notice and name something in the world. They'll also describe characteristics of that thing: a snail has a smooth, round shell and a rubbery neck. It leaves a slimy trail. A leaf bud is tiny and green; it has points and hard, tight layers. You can teach children that scientists use all of our senses to learn about the world. We feel a piece of bark and note that it is rough. We smell a flower and discover that it's sweet. We listen to a brook and notice that it gurgles.

Scientists also observe things from many different perspectives and angles. They note how something looks from far away, from up close. They turn it over, look at the front and then the back of that thing. Often they open things up, taking them apart to observe their internal structures. Kids could peel back the outer, rougher layer of a twig and notice the rubbery green inside. They could notice how one side of a leaf is flat and smooth, and the other is has bumpy veins.

Children may also learn to elaborate by growing their thinking to include questions, predictions and explanations. A child studying a maple leaf might write, "Why is the leaf so bumpy underneath," and write the prediction or hypothesis, "maybe the leaf is bumpy because it has veins like us." They may fill the top of each page of a book with questions and wonderings, then talk with a partner to come up with some possible 'maybes' before writing on the bottom of each page. Depending on what a child's question is, the child may even do a little experiment to answer the question.

Scientists measure and compare the size and quantity of things – kids might make drawings or diagrams on graph paper to help them talk and write about their findings. Scientists might also write about what causes certain actions or events, the 'how-to' or procedures for doing things related to the topic, or make lists of questions to pursue related to a topic.

### As the Unit Progresses

After children have spent a bit of time living like scientists, writing, sketching, wondering, hypothesizing, and testing, you will next want to give your children some inspiration for what they might be doing across the next few weeks as they write about their topics. First, let them know that they will be teaching others about their topic. You can decide how that will go in your classroom – perhaps your kindergarteners will present their projects to a class of visiting older students. Or maybe you'll have them set up museum exhibits displaying the collection of writing they will have created by the end

of the unit. Refer to this often throughout the next phase of the unit, so that the children have a clear sense of what they are making, and whom they'll be teaching.

Near the end of the unit you'll teach your kids to pull all their little pieces together into either one big presentation with lots of different kinds of writing or to pick out one or two of the smaller pieces and revise them into something bigger to publish and present.

If you decide to teach kids to present all the pieces, you could teach them to organize and mount all the little pieces onto a cardboard presentation board or a poster – like you would see at a conference or symposium. Teach them to think about what order the pieces should go, which pieces go together and which don't. You might teach them to create headings for their presentation board and captions. Teach your children to practice presenting their work, with a mini-introduction perhaps, or a demonstration of one of the important things to do.

If you decided, instead, to teach children to choose from all the little pieces and revise just one of them, you might angle these choices toward a non-narrative, informational pieces of writing so that they might revise their booklets to include headings, captions, a table of contents. Kids might add new chapters to this book, using some of the other little pieces they have created (the timeline, the diagram, etc.).

It is not necessary for kids to rewrite or copy over their work, in fact highlight children who have done significant revisions and editing work. Make sure that you expect significant revision work, and that you can actually see the work the children have done (don't let them erase it or throw it out!).

As the unit draws to a close, you can teach kids to edit their work by rereading it to make sure it all makes sense, crossing out parts and adding parts as necessary. Kids can check their writing for word wall words and spelling patterns they have been working on, all by themselves. One editing strategy is to circle a misspelled word, then write it correctly above. Kids might also edit to make important vocabulary bold, or underlined. Finally, to fancy-up the pieces for publishing, kids might use real photographs, just like many informational texts. They might also add more details to their pictures and diagrams, as well as color.