

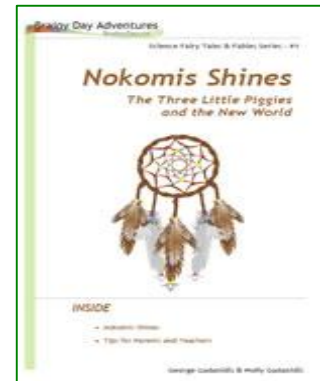


SCIENCE TALES - LESSON PLAN #1

ABOUT THIS LESSON PLAN

This lesson plan is based on the Brainy Day book, *Nokomis Shines*. In this story, the Three Little Pigs are on a camping trip when they have a dream of meeting Nokomis, the Ojibway Sky Woman who lives on the moon and protects all living things. In their dream, Nokomis takes them in her canoe across the ocean, where they discover a massive floating dump of plastic trash. What will the Three Little Pigs do?

The story is purposely written to draw student attention to and interest in big ideas of science by eliciting surprise: “There is a floating plastic dump the size of Quebec?” This realization sets the stage for students exploring, “What can we do to better protect our environment?”



This lesson plan has been classroom-tested in Grade 3, and it can easily be adapted for use in other grades.

The following learning goals are in the science curriculum for Grades 1-8:

- The study of environmental issues
- The relationship of science and technology to society and the environment.

MATERIALS

Core material

- 1 teacher copy of *Nokomis Shines* (from www.BrainyDay.ca)
- Chart paper and markers

Optional material

A class set of *Nokomis Shines* so students can take the story home, read it with their parents or guardians, and share and discuss their science learning (then return the story to their teacher).

This type of home connection helps develop students' science and communication skills, and helps parents get a better sense of the science their children are studying.

Here are some comments from parents in the case of mathematics:

“She loved the math based on a story.”

“This was surprising. I had not thought of math that way.”

“Doing math based on a story made it feel like drama.”

“He enjoyed that the math he was learning surprised me.”

“She did a great job explaining her thinking.”

LESSON DEVELOPMENT, Gr. 3

Reading of *Nokomis Shines*

Introduction

The students sit on the carpet or at their desks.

The teacher starts by telling the class that the story they will read involves the Three Little Pigs and Nokomis, the Sky Woman of Ojibway legend who lives on the moon and protects all living things.

The poet Henry Wadsworth Longfellow wrote about Nokomis in one of his famous poems. The teacher reads this poem to the class.

By the shores of Gitche Gumee,
By the shining Big-Sea-Water,
Stood the wigwam of Nokomis,
Daughter of the Moon, Nokomis.
Longfellow, 1855

The teacher reads the subtitle of the book, "The Three Little Piggies and the New World" and asks students "What might this New World be?" Students are invited to share ideas.

Reading

The teacher starts reading the story *Nokomis Shines*, showing the class the pages as they are read. The teacher pauses at the end of page 6, where the canoe goes "bump" and comes to an abrupt stop. The teacher asks, "Why do you think the canoe went 'bump' and stopped abruptly in the middle of the ocean?"

Students share and discuss their ideas with their partners. Then ideas are shared and discussed as a whole class.

The teacher reads page 7 and then asks, "Where did all that floating plastic come from?" Ideas are shared and discussed as a whole class.

The teacher reads the rest of the book, then asks, "What could the Three Little Pigs do about the floating plastic dump?" Ideas are discussed in pairs and then shared and discussed as a whole class.



Student activity

Introduction

The teacher selects information about the Floating Garbage Dump from page 15 to share with the class. For example (as reported in Wikipedia.org):

The first discovery of a Garbage Patch was by Charles Moore, in 1997. While returning to southern California after finishing a Los Angeles-to-Hawaii sailing race, he and his crew came across trash floating in one of the most remote regions of the North Pacific ocean. Moore brought his discovery to world-wide attention by writing articles about the size of the Garbage

Patch and its effects on sea life. It is estimated that 80% of the Garbage Patches are the result of land-based pollution and 20% from ships dumping garbage at sea.

Using a data projector, the teacher might show the class a Youtube video about the Floating Garbage Dump. For example, a video of Roger Moore talking about the Dump he discovered, and its impact on our environment, can be found at <http://www.youtube.com/watch?v=FrAShtolieg>. A Google or Youtube search will lead to more information and videos.

Examining their school environment

In small groups, students visit one other class per group. They look in the class recycling container and record the types of plastic they see.

Students share their findings as a whole class.

Planning to make a difference

Using chart paper and markers, and words, diagrams and pictures, students work in pairs or small groups to

- Describe the problem of the Floating Garbage Dump (how did it occur and what are the consequences?)
- Suggest possible solutions (how can we improve the situation?)

Authoring skits for sharing learning at home and for other classes

The teacher asks for a student volunteer, and the teacher and student improvise a skit of a dialogue that might take place at home about the Floating Garbage Dump. The teacher helps guide the development of the dialogue, drawing attention to plot directions that would help parents experience science/environmental ideas in a surprising and meaningful way. This process is repeated with other volunteers, and eventually with only students performing.

The students work in pairs or small groups to write their own skits of student-parent dialogues. As students gain experience with this process, they write their dialogues without teacher modeling.

Teachers who use this method notice a difference in their students. One teacher commented: "They are excited about communication. Before it was hard to get them to write anything. Now they are excited about writing." Another teacher added: "They are not just sharing answers. They are explaining. They are teaching each other. They show a real understanding." One teacher gave an example of a student whose group "finished early, and he usually wants to go back to his seat and do his own thing. But he wanted to help this group, he wanted to help that group because he was excited about it."

Authoring songs based on student writing

Using selected phrases that students write on their chart paper to summarize their learning and in their skits, the teacher could create 3-4 stanzas that summarize key science ideas and celebrate student thinking. The lyrics could be put to music using the melody from Row, Row Your Boat, or other such songs. A recording of the song could be submitted to the Math & Science Performance Festival (www.MathFest.ca).