**Instructional Design –Recycling Unit**

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Rationale

When studying any particular area of interest at the kindergarten level it is important to include many hands-on opportunities to explore the topic of interest. In addition to this, in depth discussions, student-directed questioning, and visual representations are all very important in helping students achieve a deeper understanding of the world in which they live.

I will be using the Basic Lesson Planning Model that Leigh Chiarelott depicts in *Curriculum in Context*. I like one page plans. This is why I chose this method of lesson planning. I like having my plan easily accessible and easy to read. I like to be able to quickly glance at the plan and not have to worry about leafing through a document while I am teaching. This plan that Chiarelott describes allows my lessons to be clear, simple, easy to read, yet detailed enough for a substitute teacher to use (Chiarelott, 89-90).

One problem our school is facing is a paper shortage. If our teachers continue to use paper at the rate they are, we will run out of paper by February. My class will be using The Group Investigation Model, as described in *Curriculum in Context,* to study this particular problem and come up with solutions that may help solve the problem (Chiarelott, 116-117). This model allows for students to explore the topic and concepts in an in-depth study. It stresses group work and using collected data to evaluate their solutions. This model is closest to the work we have already done in the class this year. This model also allows students to be imbedded in the problem solving process using real-world resources and solutions.

**Unit Outcomes**

The following unit outcomes are derived from the Ohio State Content Standards for Kindergarten. They also are written according to Bloom’s Taxonomy.

**Math**

•Students will be able to relate, read, and write numerals to represent numerical facts associated with the topic. (knowledge)

•Students will be able to sort, classify and order objects. (comprehension)

•Students will be able to use numbers in flexible ways (application)

•Students will be able to Gather and sort data in response to questions posed by the teacher. (application)

•Students will be able to arrange objects and information in a graph (application)

•Students will be able to model a problem situation using physical materials. (analysis/synthesis)

•Students will be able to decipher the graph to monitor the effectiveness of the solution. (Evaluation)

**Language Arts**

•Students will be able to label pictures of the topic of study. (knowledge)

•Students will be able to ask and answer questions about the topic of interest. (Comprehension)

•Students will be able to ID and discuss simple graphs, charts, and graphs. (Comprehension)

•Students will be able to generate writing through discussion with others. (application)

•Students will be able to connect information to personal experience. (Analysis)

•Students will be able to compare information in text using prior knowledge. (Analysis)

•Students will be able to share findings visually. (Synthesis)

•Students will be able to compare and contrast their findings with other groups (Evaluation)

**Social Studies**

•Students will understand the key natural resources used in their everyday lives. (knowledge)

•Students will be able to explain why trees are important. (Comprehension).

•Students will be able to sort objects by different attributes. (application)

•Students will be able to distinguish between items that can be recycled and items that must be thrown away. (analysis)

•Students will be able to develop a simple plan for reducing paper usage in the classroom. (synthesis)

•Students will explain the similarities and differences with objects and pictures. ( evaluation)

**Science**

•Students will be able to demonstrate reasons to respect the environment. (knowledge)

•Students will be able to demonstrate an understanding that materials can be used over and over again. (comprehension)

•Students will be able to use tools to gather information. (application)

•Students will be able to ask “What if questions” (analysis)

•Students will be able to make pictographs to display their conclusions. (analysis/synthesis)

•Students will be able to evaluate the outcome of their project to determine its effectiveness (Evaluation)

**Preassessment**

I will be using a “memory drawing” to gather information about what the students already know about the topic. A “memory drawing” is a Preassessment device designed by Sylvia Chard to allow young children to represent what they already know about a topic. The memory drawing allows children to represent what they already know about a topic regardless of their development. In fact, sometimes it is not a drawing at all. Students should be given many materials with which to work. Students should have the ability to represent what they know about a topic using paper, clay, play dough, blocks, and/or miscellaneous items. This allows for every child to represent their thoughts regardless of their developmental level (Chard, 2010).

The memory drawing should also include a narrative of the picture. Some students will be able to write the words by themselves, while others will need help from the teacher to write some words about their picture. The narrative should include information about preconceived ideas concerning the topic as well as how this topic relates to the personal experiences of the students.

The memory drawing will be used several times throughout the problem/project to help guide questions or to show the students how much they have learned about the topic. The students will put the drawing in their binders and it will be the first page of our journal that we use to keep track of the progress we have made on our topic.

**Lesson Plan#1: What is in the trashcan?**

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| **Concept to be attained:**  There are things that we throw away that could be recycled or reused. |
| **Unit Outcomes Addressed:**  •Students will be able to sort, classify and order objects. (comprehension)  •Students will be able to use numbers in flexible ways (application)  •Students will be able to Gather and sort data in response to questions posed by the teacher. (application)  •Students will be able to arrange objects and information in a graph (application)  •Students will be able to share findings visually. (Synthesis)  •Students will be able to sort objects by different attributes. (application)  •Students will be able to distinguish between items that can be recycled and items that must be thrown away. (analysis)  •Students will be able to demonstrate an understanding that materials can be used over and over again. (comprehension) |
| **Objective:** To learn that we throw things away that can be reused or recycled  To learn how to sort and classify objects.  To learn how to graph objects that have been sorted and classified. |
| **Time:** 45-60 minutes |
| **Materials:** Latex Gloves, trashcan with trash in it, chart paper, markers |
| **Questions:** What is trash? What else can we do with this (item from trash can)? Can any of these items be recycled or used again? Why do we need to wear gloves when we sort out trash? Why should we recycle? Where do you think paper comes from? How can we make sure we don’t throw away things that can be used again or recycled? |
| Procedures:   1. Call students to the carpet. On a piece of chart paper make a list of all of the items the students think may be in the trashcan. The trashcan should be in clear sight of every student. Help the students try to remember the different things that they have thrown away in the trash. (5-10 minutes) 2. Explain safety procedures to the children and model how to put on latex gloves and explain why you wear them (to protect your hands from germs). (5 minutes) 3. On a desk, or the floor, dump the contents of the trashcan out. (5 minutes) 4. Explain to the students that some of the items in the trashcan can be reused or recycled. With help from the students, sort out the trashcan into 3 different groups: recycle, reuse, trash. (20-30 minutes) 5. After the items have been sorted into 3 different piles, have each student choose an item to add to the bar graph on the chart paper. (10-15 minutes) 6. After the graph has been made, ask which category has the most and least. (5 minutes) |
| **Evaluation:** The students will each have a chance to choose an item from the trash and determine which category it will be placed on the graph. |
| Notes: |

**Lesson Plan#2: Making Bird Nests**

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| **Concept to be attained:**  Trees are important, because they provide homes for other animals. |
| **Unit Outcomes Addressed:**  •Students will be able to Gather and sort data in response to questions posed by the teacher. (application)  •Students will be able to ask and answer questions about the topic of interest. (Comprehension)  •Students will understand the key natural resources used in their everyday lives. (knowledge)  •Students will be able to explain why trees are important. (Comprehension).  •Students will be able to demonstrate reasons to respect the environment. (knowledge)  •Students will be able to use tools to gather information. (application) |
| **Objective:** Students will learn why it is important to cut back on paper usage, by observing trees and the animals that use those trees for homes. |
| **Time:** 60-70minutes |
| **Materials:** Chart Paper, Markers, the outside, “Just a Dream” by Chris Van Allsburg. |
| **Questions:** Why are trees important? What kinds of animals use trees? How do animals use trees? How are trees useful to people? How does a bird make a nest without hands? Why do trees need bark? |
| Procedures:   1. Read the Story, “Just a Dream” by Chris Van Allsburg. (15-20 minutes) 2. Compare and contrast the different futures that are presented in the story. Make a chart depicting the different outcomes and how those came about in the story.(5-10 minutes) 3. Tell the students that the class will be going outside and looking for “animal clues” in trees. Describe how insects make holes in trees and live in trees and also about squirrel and bird nests in trees. 4. Go outside and look at the trees. Have the students really get close and look at the textures and see if there are any signs of insects living in the tree. Next focus their attention to looking for bird and squirrel nests. (20-30 minutes) 5. Discuss how birds make nests and see if the students can find similar materials outside that a bird might use to make a nest. (10 minutes) 6. Break up into groups of 4 students. Have each group try and make a bird nest out of the same things a bird uses (twigs, leaves, grass). (15-20 minutes) |
| **Evaluation:** The students and teacher will have a discussion about animals and what would happen to their homes when trees are cut down to make paper. |
| Notes: |

**Lesson Plan#3: Making Posters**

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| **Concept to be attained:**  We can educate others about the problems of the world, or about the things that interest us. |
| **Unit Outcomes Addressed:**  •Students will be able to ID and discuss simple graphs, charts, and graphs. (Comprehension)  •Students will be able to generate writing through discussion with others. (application)  •Students will be able to connect information to personal experience. (Analysis)  •Students will be able to share findings visually. (Synthesis)  •Students will be able to demonstrate reasons to respect the environment. (knowledge)  •Students will be able to make pictographs to display their conclusions. (analysis/synthesis) |
| **Objective:** Students will design posters to educate others about recycling and reusing paper. |
| **Time:** 45-60 minutes |
| **Materials:** Paper, markers, crayons, tape, pre-made words and phrases cut out for students to use (if they cannot write yet on their own). |
| **Questions:** What is trash? What else can we do with this (item from trash can)? Can any of these items be recycled or used again? Why do we need to wear gloves when we sort out trash? Why should we recycle? Where do you think paper comes from? How can we make sure we don’t throw away things that can be used again or recycled? Where could we hang our posters? Why should we hang up our posters? What will our posters say? |
| **Procedures:**   1. Review the charts that the class has made throughout the week. (5 minutes) 2. Show the class a poster or advertisement from a newspaper about health. Discuss how we can inform others of important problems, by simply making a picture and hanging it up. (5-10 minutes) 3. Discuss some phrases students could put on a poster about recycling. Write these phrases on chart paper and put them around the room where all of the kids can see them.(5-10 minutes) 4. Break up the students into pairs or groups of three. (5 minutes) 5. Have each design a poster using the phrases we came up with on the chart paper. (20-30 minutes) 6. When the posters are finished, have the students line up. Walk around the building and hang up the posters in areas where students and staff will see them. (5-10 minutes) 7. Return to the classroom and make a list of predictions about what will happen as a result of hanging up the posters in the building. (5-10 minutes) |
| **Evaluation:** The posters that the students design will give the teacher a good idea if they understand the importance of recycling. |
| Notes: |

**Lesson Plan#4: Making a Recycling Box**

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| **Concept to be attained:**  You have to tae recyclables to a recycling location if you want them to be recycled. |
| **Unit Outcomes Addressed:**  •Students will be able to sort, classify and order objects. (comprehension)  •Students will be able to Gather and sort data in response to questions posed by the teacher. (application)  •Students will be able to connect information to personal experience. (Analysis)  •Students will understand the key natural resources used in their everyday lives. (knowledge)  •Students will be able to sort objects by different attributes. (application)  •Students will be able to distinguish between items that can be recycled and items that must be thrown away. (analysis)  •Students will be able to demonstrate an understanding that materials can be used over and over again. (comprehension) |
| **Objective:**  Sorting and classifying objects.  Students will apply their knowledge of recycling by beginning to recycle around the school. |
| **Time:** 30-40 minutes |
| **Materials:** A box, construction paper, magazines, scissors, glue, crayons, markers, colored pencils. |
| **Questions:** Where do you take recyclables? Why should you recycle? How can we make a recycling bin for our classroom? What kind of things can we put in the recycling bin? What types of things can’t we put in the recycling bin? Do you have a recycling bin at home? |
| **Procedures:**   1. Begin by having a discussion using the questions above about recycling and where to take your recyclables. (5-10 minutes) 2. Break up into 4 different groups. Each group will decorate one side of the box. Allow the students to make pictures or find them from magazines and glue these pictures on the recycling box. The pictures should be of things that are recyclable. (20-30 minutes) 3. When the box is finished have the students find other objects around the school that could be recycled and bring them back to the box. (5-10minutes) 4. Make a chart of the things that the students have collected on the chart paper. |
| **Evaluation:** The students will each collect an item from around the school that can be recycled. |
| Notes: |

**Postassessment**

In kindergarten I do not give out written evaluations. They are not developmentally appropriate for 5 and 6 year olds. Most of the assessments at the kindergarten level are either at the “observational level”, or they are individually assessed one-on-one. Since this is a group investigation project, the students will be evaluating the progress we have made on reducing the amount of paper our class uses. The post-assessment will actually be a homework assignment that the students will complete at home with their parents. Because the problem of recycling and reducing paper usage is a real-world problem, it is important to evaluate the progress the students have made in a real-world setting, like their home. The information they gather at home will be shared and compared with other students and this information will tell me whether or not some of the higher levels thinking skills were reinforced by the lessons.

This is about the only time I give homework. I will only give homework if the data collected at home allows our class to go more in depth with a particular topic. The information collected can be used both as an assessment and also an extension of the project/problem we are studying. After the students are finished with their at-home investigations I can determine if there was carry-over into the real world. Below is a letter to the parents describing the homework assignment.

Dear Parents,

We are finishing up our project on recycling. As you all know we have been studying recycling and ways to cut back on paper usage at the school. We have learned so much in such a short amount of time. To finalize our project and extend thinking to the home surroundings, I am asking you to do one project with your child sometime in the next two weeks. This will take about a half an hour and will help our class with transferring the knowledge they have gained in class and put it to use in a real-world situation. You will find the assignment below.

Assignment:

Step 1: Find a trashcan at your house. You will also need a pair of gloves.

Step2: Dump out the trashcan on some newspaper or an old sheet…or on the floor if you don’t mind the mess.

Step 3: Help your child sort out the trash into 3 different piles: one for recycling, one for reusing, and one for trash.

Step 4: Make a simple chart or bar graph depicting the categories and somewhere on the visual make sure to indicate which one has the most and which one has the least.

Step 5: Find a place to recycle the recyclables (even though there is no recycling center nearby, there are several factories and businesses in the area where you can recycle your plastic, aluminum, and paper.

If you have any questions, please feel free to call me at school.

Sincerely,

John Zibbel

Bibliography:

Chard, Sylvia. “Engaging Children’s Minds: The Project Approach” Engaging Children’s Minds: The Project Approach [Conference]. Perrysburg, Ohio. 7 May. 2010.

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