APPENDIX B

Science Backpacks
Introduction

The following backpacks were designed by Kindergarten teachers.

An instruction sheet for the family is included with each backpack. It describes the contents of the backpack with an explanation of the activities to be completed at home. Notes for the teacher follow each instruction sheet. Each one states the outcomes(s) addressed and the materials required to create each backpack. Selections of children's literature vary amongst classroom libraries. You may decide to include a title that you have or substitute suggested titles that would be appropriate to meet particular outcomes. Family instruction sheets may be printed double-sided on cardstock and laminated for durability. The return date could be written on a label in pencil or with an erasable marker.

The activities are referred to as “Science Backpacks” but they may be placed in zipper baggies, cloth shoebags, small backpacks, or whatever you choose. The intent is to share science concepts with the home in a friendly way which is meaningful and promotes learning through hands-on activities. You may choose to make several copies of a backpack so that each child is bringing home the same backpack at the time that you are teaching the outcome(s) in class or you may create only one copy of each backpack to circulate throughout the whole year. Management of the backpacks will depend on individual teachers.
#1 Kindergarten Science Backpack Instruction Sheet

Observing Living and Non-living Things

Dear Family,

Tonight your child is taking home a “Science Backpack” with activities to enjoy together.

Please complete the following activities:

A. Find 2 living and 2 non-living things inside or outside your home. Draw them in the journal provided. Adults can help by labelling the pictures. Please refer to the examples on back of this instruction sheet.

B. Using the 4 pictures drawn by the child, play a guessing game. Choose 1 of the 4 items drawn and give clues to your child, describing:
   a. what it feels like
   b. what it smells like
   c. how it sounds
   d. how it tastes (if applicable)
   e. what it looks like

You may wish to switch roles and have your child give clues to you to guess the object.

Please return this “Science Backpack” on _____________________________.

Enjoy the activities at home but please remember to return the enclosed items on the return date so that they can be enjoyed by another classmate and family.

• 1 journal
• 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Observing Living and Non-living Things

Outcomes addressed through this activity:

*Students will be expected to*

- develop vocabulary and use language to bring meaning to what is seen and thought.  
  Include:
  1. living
  2. non-living (100-1)

- select different ways to represent ideas about living things and to communicate these with others. 
  Include:
  1. chart
  2. verbal (100-2)

- observe a variety of living and non-living things, using the senses. (201-4)

You will need:

- #1 instruction sheet with sample on the back and instructions on the front.
- A blank journal/exercise book. You may decide to include the blank sample on the front cover of this book.
### Blank Sample

<table>
<thead>
<tr>
<th>Living Things</th>
<th>Non-living Things</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name: _____________________________
<table>
<thead>
<tr>
<th>Living Things</th>
<th>Non-living Things</th>
</tr>
</thead>
<tbody>
<tr>
<td>my brother</td>
<td>book</td>
</tr>
<tr>
<td>plant</td>
<td>fork</td>
</tr>
</tbody>
</table>

Name: __________________________
#2 Kindergarten Science Backpack Instruction Sheet

**Characteristics of Living Things**

Dear Family,

Tonight your child is taking home a “Science Backpack” with activities to enjoy together.

Please complete the following activities:

1. Refer to pages 2 and 3 in the book, *Living Things* and discuss living and non-living things.

2. Look at the picture cards in the tin. Sort them into two groups: living and non-living.

Please return this “Science Backpack” on ________________.

Enjoy the activities at home but please remember to return the enclosed items on the return date so that they can be enjoyed by another classmate and family.

- 8 picture cards
- 1 metal tin
- *Living Things* book
- 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Characteristics of Living Things

Outcomes addressed through this activity:

Students will be expected to

• Place materials and objects in groups according to one or more attributes. (202-2)
  - classify things as living or non-living

You will need:

• #2 instruction sheet.
• Eight picture cards of living and non-living objects printed on cardstock and laminated for durability.
• Add magnetic tape to the back of each picture (optional).
• Cookie or metal tin for storage. Label the bottom inside of the tin, “Living,” and the inside of the cover, “Non-living.”
• Student Book: Living Things (lesson 1 p. 2-3) (Pan Canadian Science Place: My World Classroom Kit (2002).
#3A Kindergarten Science Backpack Instruction Sheet

**Life Cycles**

Dear Family,

Tonight your child is taking home a "Science Backpack" about life cycles with activities to enjoy together.

Please complete the following activities:

A. Read aloud the story, *Love You Forever*, by Robert Munsch. Discuss the changes that happened to the boy and his mother over a period of time.

B. Find some photographs of you when you were a baby and notice the changes that have occurred since you were born.

C. On the sheet provided in the folder, glue in or draw pictures of yourself:
   1. as a baby
   2. now
   3. when you are grown up

Please return this "Science Backpack" on ________________________________

Enjoy the activities in this bag, but please remember to return the bag on time with the following enclosed items:

- 1 folder with sheets
- 1 instruction sheet
- *Love You Forever*, by Robert Munsch
Notes for the Teacher

Life Cycles

Outcomes addressed through this activity:

*Students will be expected to:*

- detect consistency and pattern in objects and events and use language to describe these patterns (100-3)
- recognize that all living things have a life cycle
- recognize that a life cycle involves growth and change
- list several stages of the human life cycle

You will need:

- #3A instruction sheet (double-sided with sample on the back and instructions on the front)
- A copy of the children’s literature selection, *Love You Forever*, by Robert Munsch
- Duotang or binder with copied sheets (You may use the blank sample or make your own. You may choose to include the completed sample on the inside cover.)
Name:  

<table>
<thead>
<tr>
<th>Me as a baby</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Me now</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Me as a grown-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Sample Sheet

<table>
<thead>
<tr>
<th>Me as a baby</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image of a baby drawing]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Me now</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image of a child drawing]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Me as a grown-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image of an adult drawing]</td>
</tr>
</tbody>
</table>
Dear Family,

Tonight your child is taking home a "Science Backpack" with the following activities to enjoy together:

1. Prior to reading, find out what your child already knows about the life cycle of an animal or plant in their book.

2. Select one of the books to read with your child.

3. After reading the book with your child:
   • name the stages in the life cycle. (Example: Butterfly – egg, caterpillar, chrysalis, butterfly)
   • discuss how long each stage takes.
   • discuss facts that you both learned that you didn’t know before.

4. Using the puzzle pieces provided, dramatize the life cycle that you read about in the book which your child selected.

5. Write a fact about the life cycle of an animal/plant that you read about in your book. Write the fact in the journal provided and illustrate it in the space above your writing.

Please return this "Science Backpack" on _____________________________.

Enjoy the activities at home but please remember to return the enclosed items on the return date so that they can be enjoyed by another classmate and their family:

• 3 Life cycle books
• 1 journal
• life cycle puzzles
• 1 instruction sheet
Notes for the Teacher

Life Cycles

Outcomes addressed through this activity:

Students will be expected to:

- detect consistency and pattern in objects and events and use language to describe these patterns (100-3)
- recognize that all living things have a life cycle
- recognize that a life cycle involves growth and change

You will need:

- #3B instruction sheet
- A selection of books (no more than 3 per backpack) depicting life cycles. (Example: butterfly, chicken, frog, ant, plant, pumpkin, sunflower, etc.)
- Journal or exercise book where children record and illustrate one fact that they learned from reading a book about the life cycle of an animal or plant.
- Puzzle pieces printed and laminated from the website: http://www.kellyskindergarten.com/science/science_center_activities.htm Puzzle pieces can be found on this website by clicking on the link entitled life cycle puzzles. The pieces can be used as a puzzle or played with a family member.

Sample Journal Entry

Butterflies start out as little eggs.
Dear Family,

Tonight your child is taking home a "Science Backpack" with plant activities for you to enjoy together.

Please complete the following activities:

1. Choose two different seeds from the bag provided.
2. Wet a paper towel and place it in the plastic bag provided with the seeds.
3. Tape the bag to a window which receives a lot of sun.
4. Take a recording sheet out of the folder to record and draw your observations during the week. Record what you see happening inside the bag on day 1, day 4, and day 7. Once your seed has been planted for 7 days, record your final observations of the seed and the bag and return the record sheet to school. The backpack can be returned once your seed is planted in the bag and you have completed activities 6 and 7.
5. If the paper towel becomes dry, add a tablespoon of water to the bag.
6. Using the puzzle pieces provided, complete the puzzle together to make a flower.
7. Discuss the names for each part of the plant and try to remember the names of each one of the four parts.
8. If you have internet access, you may want to visit one of these websites to learn more about growing plants: http://www.bbc.co.uk/schools/scienceclips/ages/5_6/growing_plants.shtml or http://www.starfall.com/n/holiday/gardenshop/play.htm?f.

Please return this "Science Backpack" on ________________

Enjoy the activities in this bag, but please remember to return the bag on time with the following items:

- 1 bag of various seeds
- 1 box of bags
- 1 roll of paper towel
- 1 set of flower puzzles (16 pieces)
- 1 roll of tape
- 1 folder with sheets to record plant growth
- 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Plants

Outcomes addressed through this activity:

Students will be expected to

• develop vocabulary and use language to bring meaning to what is seen and thought. Include:
  i. plant
  ii. seed
  iii. leaf/stem/roots/flower (100-1)

• follow a simple procedure where instructions are given one step at a time (201-1)

• manipulate materials purposefully (201-2)

• observe, using one or a combination of the senses (201-4)

You will need:

• #4A instruction sheet

• Seeds – beans or peas are the easiest (cheap and grow quickly). Be careful of the size so that a choking hazard will be eliminated. You may want to avoid lima beans.

• A box of sandwich bags

• A roll of tape

• A roll of paper towel or napkins

• A folder of record sheets with a sample attached inside the front cover

• Puzzle pieces printed and laminated from the section, plant matchup, on the website: [http://www.kellyskindergarten.com/science/science_center_activities.htm](http://www.kellyskindergarten.com/science/science_center_activities.htm). You can use the pieces as a puzzle or you can suggest that the children play it with a family member.

Additional suggestions which incorporate music can be found at [http://www.kellyskindergarten.com/Monthly%20Centers/April/april_centers.htm](http://www.kellyskindergarten.com/Monthly%20Centers/April/april_centers.htm)

The following website contains an animation which compares the time difference for draining clay and sandy soil: [http://www.ngflcymru.org.uk/vtc/phase4_20030801/Wales/Science/Keystage2/Life-processesan/Anonlineoilexp/Introduction/default.htm](http://www.ngflcymru.org.uk/vtc/phase4_20030801/Wales/Science/Keystage2/Life-processesan/Anonlineoilexp/Introduction/default.htm)
#4A Kindergarten Science Backpack

**Growing My Seed Record Sheet**

Name: ______________________________

<table>
<thead>
<tr>
<th></th>
<th>Draw what the seed looks like today.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td></td>
</tr>
<tr>
<td>Day 4</td>
<td></td>
</tr>
<tr>
<td>Day 7</td>
<td></td>
</tr>
</tbody>
</table>
#4A Kindergarten Science Backpack

**Growing My Seed Record Sheet: Sample**

<table>
<thead>
<tr>
<th></th>
<th>Draw what the seed looks like today.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day 1</strong></td>
<td><img src="image" alt="Day 1 Seed Drawing" /></td>
</tr>
<tr>
<td><strong>Day 4</strong></td>
<td><img src="image" alt="Day 4 Seed Drawing" /></td>
</tr>
<tr>
<td><strong>Day 7</strong></td>
<td><img src="image" alt="Day 7 Seed Drawing" /></td>
</tr>
</tbody>
</table>
Dear Family,

Tonight your child is taking home a "Science Backpack" about plants with activities to enjoy together.

Please complete the following activities:

1. Read and discuss the book Plants and Seeds from the bag provided.
2. Look at the seeds in the baggie and describe each of them together.
3. Find the one which is the biggest and the smallest.
4. Choose one of the beans from the bag and describe how it feels.
5. Use the sorting mat and sort the beans by:
   - shape (e.g., round, pointed, bean shaped)
   - size (e.g., small, medium, and large)
   - colour

Please return this "Science Backpack" on _____________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the following items:

- 1 bag of various seeds
- 1 sorting mat
- 1 book Plants and Seeds
- 1 instruction sheet
Notes for the Teacher

Plants

Outcomes addressed through this activity:

*Students will be expected to:*

- observe consistency and pattern in plants and use language to describe these patterns. Include:
  1. biggest-smallest (size)
  2. number
  3. colour
  4. texture (100-3)

- follow a simple procedure where instructions are given one step at a time (201-1)
- manipulate materials purposefully (201-2)
- observe, using one or a combination of the senses (201-4)
- place materials and objects in a sequence or in groups according to one or more attributes (202-2)

You will need:

- #4B instruction sheet
- *Plants and Seeds* from the Sunshine Science: Investigating Our World – Level One
- A bag of mixed seeds – 8-12 varieties (e.g., beans, peas, sunflower seeds, apple, pumpkin, red or green pepper, orange, mustard). You may find some of these in a spice rack. Select beans which will not pose a choking hazard.
- A sorting mat (4 sections on one side, 6 on the other, laminated)
Dear Family,

Tonight your child is taking home a "Science Backpack" with activities to enjoy together.

Please complete the following activities:

1. Examine the covers of each book and discuss what your child already knows about the animals before reading the books together.

2. Read the books together with your child.

3. After reading, discuss the animals from the books and their different characteristics including: fur, feathers, legs, teeth, tails, beaks, wings, etc.

4. Sort the animal picture cards into groups based on the following characteristics:
   - Fur/feathers/scales/skin
   - Legs/fins/tails/wings
   - Claws/fangs/beaks
   - Gills/tails

5. Write one fact or characteristic about a favourite animal in one of the books. Record it in the journal provided and illustrate your writing.

Please return this "Science Backpack" on ________________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the enclosed items.

- ___ animal books
- 1 journal
- animal picture cards
- 1 instruction sheet
Notes for the Teacher
A Closer Look at Animals

Outcomes addressed through this activity:

Students will be expected to

• use personal observations when asked to describe characteristics of animals studied. Include:
  i. they have fur/feathers/scales/skin
  ii. they have legs/fins/tails/wings
  iii. they make distinct sounds (202-1)

• recognize distinguishing features that help an animal meet its needs. Include:
  i. claws, fangs, and beaks
  ii. acute hearing and eyesight
  iii. gills and tails
  iv. distinct movement (100-7)

You will need:

• #5A instruction sheet
• animal picture cards printed on cardstock and laminated for durability
• a selection of 3 animal books
• journal with sample entry on front cover

Sample Journal Entry

Cats have fur.
<table>
<thead>
<tr>
<th>Bear</th>
<th>Bird</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>Penguin</td>
</tr>
<tr>
<td>Snake</td>
<td>Pelican</td>
</tr>
<tr>
<td>Shark</td>
<td>Lion</td>
</tr>
</tbody>
</table>
Dear Family,

Tonight your child is taking home a "Science Backpack" with activities to enjoy together.

Please complete the following activities:

1. Read the books together with your child.

2. After you have read each book discuss the different ways that animals move.

3. Look at the animal picture cards and sort them into the following groups based on the movement of each one:
   - running
   - hopping
   - swimming
   - lying

4. Play “Animal Charades.” Take turns selecting a picture card and acting out the movement of the animal on the card until each animal is identified.

Please return this “Science Backpack” on _____________________________.

Enjoy the activities in this bag but please remember to return the bag on time with the following items:

• ___ Animal books
• Animal picture cards
• 1 Instruction sheet

Happy Exploring!
Notes for the Teacher

A Closer Look at Animals

Outcomes addressed through this activity:

Students will be expected to

• describe the different ways animal move to meet their needs. Include:

  i. running
  ii. hopping
  iii. swimming
  iv. flying (100-7)

You will need:

• #5B instruction sheet printed on cardstock and laminated
• a set of animal movement picture cards printed on cardstock and laminated for durability
• a selection of 3 animal books
<table>
<thead>
<tr>
<th>Rabbit</th>
<th>Horse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bat</td>
<td>Grasshopper</td>
</tr>
<tr>
<td>Owl</td>
<td>Deer</td>
</tr>
<tr>
<td>Dolphins</td>
<td>Fox</td>
</tr>
</tbody>
</table>
#6A Kindergarten Science Backpack Instruction Sheet

Animal Homes

Dear Family,

Tonight your child is taking home a "Science Backpack" about animal homes with activities to enjoy together.

Please complete the following activities:

1. Use your imagination to create an imaginary animal.
2. Use the open-response sheet from the folder to help you talk about your animal.
3. Name and draw a picture of your animal and its home and record your responses on the sheet provided.
4. Build a home for your imaginary creature using the materials in the bag and/or any other items that you have at home.

Please return this "Science Backpack" on _____________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the following items:

- 1 folder with open-response statements to help describe imaginary animals
- a variety of consumable construction materials to make the model home
- 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Animal Homes

Outcomes addressed through this activity:

*Students will be expected to*

- choose materials to build a variety of real and imaginary habitats (103-1)
- explore how characteristics of materials may change as a result of manipulating them into a habitat (101-1)
- manipulate materials purposefully (201-2)
- follow a simple procedure to build a (201-2)

You will need:

- #6A instruction sheet with an itemized list of construction materials
- A class set of question sheets in a folder with a sample attached to the front
- A *variety of construction materials such as:*
  - roll of scotch tape
  - roll of masking tape
  - glue stick
  - white glue
  - modelling clay
  - popsicle sticks
  - straws
  - pipe cleaners
  - construction paper scraps
  - toothpicks
  - scissors
#6A Kindergarten Science Backpack Response Sheet

Animal Homes

Name: ______________________________

My animal is called an _________________________________.

It lives in a(n) _________________________________.
    (cave, ocean, forest, desert, ground, nest, etc.)

It needs ________________________________ to live there.
    (fins, wings, claws, sticky feet, scales, gills, tail, etc.)

It eats ______________________________________
    ____________________________________________.

It moves by _________________________________.
    (flying, swimming, running, walking, crawling, slithering, waddling, etc.)

Here is a picture of my animal and its home.
#6A Kindergarten Science Backpack Response Sheet

**Animal Homes: Sample**

My animal is called a _catagator_.

It lives in a(n) ___ **forest**___.
(cave ocean, forest, desert, ground, nest, etc.)

It needs ___ **claws**___.
(fins, wings, claws, sticky feet, scales, gills, tail, etc.)

It eats ___ **leaves**___.

It moves by ___ **walking and climbing**___.
(flying, swimming, running, walking, crawling, slithering, waddling, etc.)

Here is a picture of my animal and its home.

![Picture of animal and home]
#6B Kindergarten Science Backpack Instruction Sheet

Animal Homes

Dear Family,

Tonight your child is taking home a "Science Backpack" about animal homes with activities to enjoy together.

Please complete the following activities:

1. Select a book to read about animal homes.

2. Discuss with a grown up how your home is different and how it is the same as the animals that you read about in your book.

Please return this “Science Backpack” on ______________________________.

Enjoy the activities but please remember to return them on time with the following items:

- _____ books about animals and their homes
- 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Animal Homes

Outcomes addressed through this activity:

Students will be expected to:

• develop vocabulary and use language to bring meaning to what is seen and thought. Include:
  i. habitat (100-1)

• This outcome is included in the unit “A Closer Look at Animals” in the curriculum guide. It is a natural connection to look at animal homes before attempting to build them in the unit “Animal Homes.”

You will need:

• #6B instruction sheet
• A minimum of 3 books about animal homes

Suggested books:

How Spiders Live, a student book from Sunshine Science: Investigating Our World – Level One
How Ants Live (Sunshine Science Series)
House for a Hermit Crab by Eric Carle
#7A Kindergarten Science Backpack Instruction Sheet

Observing Things Around Us

Dear Family,

Tonight your child is taking home a "Science Backpack" with activities to enjoy together.

Please complete the following activities:

1. Go on a scavenger hunt around your home with an adult. Choose 5 objects to describe using as many of your five senses as possible.

2. Select one object from the scavenger hunt and place it in the mystery bag to return to school.

3. In the exercise book provided, write two clues about the object placed in the mystery bag. (Example: It has wheels. It can roll.) Draw a picture of the object and label it on the opposite side of the page. (Example: It is a toy car.)

Please return this “Science Backpack” on _____________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the enclosed items.

• 1 "Mystery Object" Class Book
• Mystery Bag
• 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Observing Things Around Us

Outcomes addressed through this activity:

*Students will be expected to:*

- develop vocabulary and use language to bring meaning to what is seen and thought. Include:
  
  i. set
  
  ii. properties (smooth, rough, colour, and shape)
  
  iii. sort (100-1)

You will need:

- #7A instruction sheet
- Mystery Bag (cloth bag with a drawstring)
- ½ of an Exercise book to use as a “Mystery Object Class Book”

Class Book Sample (front page)

It has wheels. It rolls.

Class Book Sample (back page)

It is a toy car.
#7B Kindergarten Science Backpack Instruction Sheet

Observing Things Around Us

Dear Family,

Tonight your child is taking home a "Science Backpack" with activities to enjoy together.

Please complete the following activities:

1. Read "I Spy" and find the hidden objects in the book.

2. Use the magnifying glass to match images on the small picture cards to the same images on the larger cards.

Please return this "Science Backpack" on _____________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the enclosed items.

• 12 picture cards
• magnifying glass
• "I Spy" book
• 1 Instruction sheet

Happy Exploring!
Notes for the Teacher

Observing Things Around Us

Outcomes addressed through this activity:

Students will be expected to

• develop vocabulary and use language to bring meaning to what is seen and thought. Include:
  i. set
  ii. properties (smooth, rough, colour, and shape)
  iii. sort (100-1)

• use personal observations when asked to describe characteristics of materials and objects studied (202-1)

You will need:

• #7B instruction sheet
• a selection of “I Spy” books (or similar look-and-find type books)
• magnifying glasses
• magnifying picture cards

Teachers can use the sample cards included (page 104) or find additional cards at: http://www.kellyskindergarten.com/science/science_center_activities.htm
<table>
<thead>
<tr>
<th>Penguin</th>
<th>Crayons</th>
<th>Lavender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lizard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dog</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dear Family,

Tonight your child is taking home a “Science Backpack” with activities to enjoy together about using things around us.

Please complete the following activities:

1. Read and discuss How Machines Help.

2. Find a simple machine in your house (e.g., can opener, scissors, egg beater, etc.). Place the shape on a page in the journal and trace its shape.

3. Think about how the simple machine can make a task easier. Write a sentence describing how your simple machine helps you. For example, if your simple machine is a knife you may write, “A knife helps me cut food.”

Please return this “Science Backpack” on __________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the enclosed items.

• How Machines Help, Pupil Book from Sunshine Science: Investigating Our World-Level One
• 1 journal
• 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Using Things Around Us

Outcomes addressed through this activity:

Students will be expected to:

• identify and explore ways to use materials to help carry out a variety of useful tasks (101-2)
• recognize that materials are appropriate for certain uses based on their properties

You will need:

• #8A instruction sheet
• How Machines Help, student book from Sunshine Science: Investigating Our World – Level One
• Journal
Dear Family,

Tonight your child is taking home a “Science Backpack” with activities to enjoy together about using things around us.

Please complete the following activities:

1. Sometimes, a glossary can be found in the back of a book. It lists words and their meanings. Things We Use, Pan Canadian Science Place: My World, Book 2, has a glossary on pages 8 and 9 to help you find the meaning of some of the words in this book. Browse through the glossary to see how many new words you can find. Talk about these words and relate them to experiences in your child’s world. For example, when discussing the term reduce you may want to talk about the extra packaging used on some toys when they are purchased which could easily be reduced.

2. Talk about the possibilities for reducing, reusing, or recycling in and around your home and community.

3. Using one of the three booklets provided, Reduce, Reuse, and Recycle, ask your child to select one of the possibilities and illustrate it in the appropriate booklet. Help your child to write the idea beneath the illustration.

4. Look at the recycling symbol shown here. It can be found on many items in your home. Try to find 3-5 items with this symbol.

If you have internet access, you may want to explore the following website to discover the importance of keeping our earth clean: http://www.starfall.com/n/holiday/earthday/play.htm?

Please return this “Science Backpack” on ____________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the enclosed items.

• Things We Use, Pan Canadian Science Place: My World, Book 2
• 3 booklets labelled Reuse, Recycle, and Reduce
• 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Using Things Around Us

Outcomes addressed through this activity:

Students will be expected to

• describe and demonstrate ways we use our knowledge of materials to maintain a healthy environment. Include Reduce, Reuse and Recycle (102-8)

• identify materials and suggest a plan for how they will be used (200-5)

You will need:

• #8B instruction sheet

• Things We Use, Pan Canadian Science Place: My World Book 2

• Three booklets (journal or ½ exercise books, etc.), each one should be labelled differently with the labels Reduce, Recycle, and Reuse.
Dear Family,

Tonight your child is taking home a “Science Backpack” with activities about weather to enjoy together.

Please complete the following activities:

1. Using the calendar provided, read the names of each month with your child.

2. Locate the current month and find today’s day and date on the calendar.

3. Review the names of the four seasons and identify the current season. Discuss and identify the seasons associated with occasions that are special for your child.

<table>
<thead>
<tr>
<th>Seasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
</tr>
<tr>
<td>Fall</td>
</tr>
<tr>
<td>Winter</td>
</tr>
<tr>
<td>Spring</td>
</tr>
</tbody>
</table>

4. Discuss weather possibilities for today.

5. Select five different crayons from the bag and identify each colour selected. Once the colours are identified, an association to five different types of weather can be made using the chart below. Review the colours which represent different types of weather.

<table>
<thead>
<tr>
<th>Crayon Colour</th>
<th>Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>Sunny</td>
</tr>
<tr>
<td>Purple</td>
<td>Rainy</td>
</tr>
<tr>
<td>Green</td>
<td>Foggy</td>
</tr>
<tr>
<td>Blue</td>
<td>Snowy</td>
</tr>
<tr>
<td>Orange</td>
<td>Cloudy</td>
</tr>
</tbody>
</table>

(OVER)
6. Record today's weather by colour coding the date on the calendar. Refer to the weather scale to determine which colour you will select to represent the weather for the day. Use the crayons provided to record the weather on the calendar. For example, if it is a rainy day on September 01 this date will be coloured purple.

7. Discuss the weather each day throughout this week and record it on the calendar.

Please return this "Science Backpack" on _____________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the following items:

• 5 crayons (yellow, purple, green, blue, and orange)
• 1 calendar
• 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Observing Local Weather

Outcomes addressed through this activity:

Students will be expected to:

• develop vocabulary and use language to bring meaning to what is seen and thought. Include:
  (i) observation
  (ii) graphing
  (iii) recording
  (iv) weather cycles (100-1)

• detect consistency and patterns in weather events and use language to describe these patterns. Include the terms:
  (i) windy
  (ii) foggy
  (iii) sunny
  (iii) cloudy
  (iv) rainy/snowy
  (v) warm/hot/cold (100-3)

• place materials and objects in a sequence or in groups according to one or more attributes (202-2)
  - classify and chart the weather over a period of time
  - classify the period of time into one of the four seasons

You will need:

• #9 instruction sheet (laminate the card for durability)
• A calendar for the current year. You can use a complimentary one from a local business to make the experience authentic.
• 5 crayons in a small bag: yellow, purple, green, blue and orange
Sample Calendar

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Throughout this unit, the following link to access the SMARTboard Weather Graph and tutorial maybe useful. It can be used on your classroom computer if you have the Notebook software. A SMARTboard is not necessary. Notebook software can be installed on a computer whether or not it is hooked up to a SMARTboard. You will need a serial number to download Notebook from: http://www2.smarttech.com/st/enUS/Support/Downloads/default.htm. An activation code will be given to you once this software is downloaded. If you have access to a SMARTboard you are already registered. You will need the serial number and activation code.

A Weather Chart can be found at https://calvert.wiki.ccsd.edu/SMART+notebook+Weather+Chart

Another link with a weather chart and a hundreds chart is: http://www.teachertube.com/view_video.php?viewkey=0b4d35a731817b538b21&page=1&viewtype=&category=
Dear Family,

Tonight your child is taking home a "Science Backpack" with activities to enjoy together about soil.

Please complete the following activities:

1. Read and discuss pages 6 and 7 in *Look Everywhere*, Pan Canadian Science Place: My World, Book 3.

2. Discuss what lives in dirt and find at least 5 things using the illustrations. Your child may think of other things that are not in the picture.

3. With your child, look at the recipe card for “Worms in Dirt” and discuss what a recipe is and the format that a recipe usually follows. Together, find the ingredients that are listed on the top. Read the step by step instructions on the bottom of the recipe card to learn how you can make this recipe. You may keep one copy of the recipe, “Worms in Dirt,” to make with your family sometime. If you have a recipe book at home you may look through it to see how other recipes are written. Sometimes, people write their names at the end of a recipe if they offered a favourite recipe to make a cookbook. Perhaps you may find a favourite that you would like to try at home with your child.

4. Work with your child to create a recipe for a mud pie. Begin by selecting the type of soil that you will need. It may be sandy, like clay, or black gardening soil. How much water will you need? Will you mix something in it? Will you have any worms or other living things in your recipe? Help your child to write a list of ingredients in “Our Soil Cookbook.” Then, record your step by step instructions below the list.

5. Ask your child to draw a simple picture on the page with the recipe and write his or her name at the end.

Please return this “Science Backpack” on _____________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the following items:

- *Look Everywhere*, Pan Canadian Science Place: My World, Book 3
- "Our Soil Cookbook" journal
- 1 instruction sheet

Happy Exploring!
10A Kindergarten Science Backpack Instruction Sheet

A Look at Soil

Worms in Dirt Recipe

This recipe is based on the Online Learning Haven website: http://www.learninghaven.com/cooking/articles/worms_in_dirt.htm

Ingredients:

- 1 16 ounce package Oreo type cookies (doesn’t have to be exact)
- 2 cups cold milk
- 1 small package chocolate instant pudding
- 1 tub (8 oz.) whipped topping, thawed slightly
- 8 individual serving cups
- Gummy worms

Directions:

- CRUSH cookies in zipper-style plastic bag with rolling pin or use a food processor.

- *POUR cold milk into large bowl. Add pudding mix. Beat with wire whisk 2 minutes. Let stand 5 minutes. Stir in whipped topping and 1/2 of the crushed cookies.

- PLACE about 1 tablespoon crushed cookies into each cup. Fill cups about 3/4 full with pudding mixture. Top with remaining crushed cookies.

- REFRIGERATE until ready to serve. Just before serving, push gummy worms about halfway in the pudding. Makes about 8 servings.

*Alternative:

Substitute the pudding mix for individual chocolate pudding cups. Divide the crushed cookies and the gummy worms among the pudding cups and serve.
Notes for the Teacher

A Look at Soil

Outcomes addressed through this activity:

Students will be expected to:

- use personal observations when asked to describe characteristics of soils studied. Include:
  - colour
  - texture
- communicate ideas, and predictions while conducting their soil investigations (203-1)
  - predict which soils would be best for plant growth

You will need:

- #10A instruction sheet
- *Look Everywhere*, Pan Canadian Science Place: My World, Book 3
- Copies of the recipe, “Worms in Dirt”
- An “Our Soil Cookbook” (blank journal) to write recipes
Dear Family,

Tonight your child is taking home a "Science Backpack" with activities about soil to enjoy together.

Please complete the following activities:

1. Use the magnifying glass to look at the miniature soil pictures to help find the larger version of the matching picture.

2. Discuss the appearance of the soil in each picture. Predict what each one might feel like. Which one would be good for growing plants?

Please return this "Science Backpack" on _____________________________.

Enjoy the activities in this bag, but please remember to return the bag on time with the enclosed items.

• 1 set of _____ picture cards
• 1 magnifying glass
• 1 instruction sheet

Happy Exploring!
Notes for the Teacher

A Look at Soil

Outcomes addressed through this activity:

*Students will be expected to:*

- use personal observations when asked to describe characteristics of soils studied. Include:
  - i. colour
  - ii. texture (202-1)

You will need:

- #10B instruction sheet
- matching miniature and large picture cards of soil
- a magnifying glass
<table>
<thead>
<tr>
<th><img src="image1.png" alt="Image 1" /></th>
<th><img src="image2.png" alt="Image 2" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Image 3" /></td>
<td><img src="image4.png" alt="Image 4" /></td>
</tr>
</tbody>
</table>

The images depict various natural textures and patterns.
<table>
<thead>
<tr>
<th><img src="image1.png" alt="Image" /></th>
<th><img src="image2.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>Tree in a field</td>
<td>Plant in soil</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Flowers in garden</td>
<td>Sun setting</td>
</tr>
<tr>
<td>Cracked earth</td>
<td></td>
</tr>
<tr>
<td><img src="image1" alt="Field with wind turbines" /></td>
<td><img src="image2" alt="Soil with plant sprout" /></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td><img src="image1" alt="Field with wind turbines" /></td>
<td><img src="image2" alt="Soil with plant sprout" /></td>
</tr>
</tbody>
</table>

**APPENDIX B**
#11A Kindergarten Science Backpack Instruction Sheet

Water

Dear Family,

Tonight your child is taking home a "Science Backpack" with water activities to enjoy together.

Please complete the following activities:

1. Read the information books about water.

2. Discuss the different forms that water can take. For example: steam (gas), liquid (water), or ice (solid).

3. Discuss how water can freeze, melt, and evaporate.

4. Play the Melt-An-Ice-Cube game. Discuss how the ice cube melted the fastest and why this happened.

Please return this “Science Backpack” on _____________________________.

Enjoy the activities but please remember to return the bag on time with the following items:

• _____ water books
• Melt-An-Ice-Cube game
• 1 die
• 1 instruction sheet

Happy Exploring!
Notes for the Teacher

Water

Outcomes addressed through this activity:

Students will be expected to:

• develop vocabulary and use language to bring meaning to what is seen and thought. Include:
  i. melt
  ii. freeze
  iii. dissolve (100-1)

• explore the characteristics of water that may change as a result of
  i. adding a solute
  ii. freezing
  iii. melting
  iv. evaporating (101-1)

You will need:

• #11A instruction sheet
• selection of books (no more than 3 per backpack) about water
• 1 die
• Melt-An-Ice-Cube Game printed and laminated from http://www.littlegiraffes.com/Melt%20an%20Ice%20Cube%20Game.pdf
Dear Family,

Tonight your child is taking home a "Science Backpack" with activities to enjoy together.

Please complete these activities:

1. Read [Floating and Sinking](#).

2. Choose two household objects which you and your child predict will sink and two which you predict will float.

3. Check to see if your predictions are correct. Fill a sink with water to determine if the items will sink or float.

4. Find four more objects to test.

5. Sort the objects into two groups: items which float and items which sink.

Please return this "Science Backpack" on _____________________________.

Enjoy the activities but please remember to return the following items:

- [Floating and Sinking](#), pupil book from [Sunshine Science Investigating Our World - Level One](#)
- 1 Instruction sheet

Happy Exploring!
Notes for the Teacher

Water

Outcomes addressed through this activity:

*Students will be expected to*

- communicate ideas, and predictions while conducting their water investigations
  - describe the effect of temperature change on the amount of evaporation
  - describe the effect of temperature change on the amount of melting/freezing
  - students will place objects in groups according to whether they will float or sink
  - investigate the properties of floating and sinking by exploration (203-1)

You will need:

- #11B instruction card