



Lab Notebook



Index of Investigations, Challenges and Activities

Interactions and Ecosystems

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Give It A TRY

Creating A Plan (p. 6)

Natural Area _____

| Negative Human Impacts on this area | Solutions to reduce the Impact |
|-------------------------------------|--------------------------------|
| | |
| | |
| | |
| | |
| | |

Give It A TRY

Biotic and Abiotic Factors In The Classroom (p. 9)

| Biotic Factors | Abiotic Factors |
|----------------|-----------------|
| | |
| | |
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Inquiry 1-B

Ecosystem In A Jar (p. 18)

Question: What types of living and non-living things can you put in a sealed jar to make a self-sustaining mini-ecosystem?

Hypothesis: _____

Materials and Procedure: (p. 18)

Data Collection:

| Living | Non-Living |
|--------|------------|
| | |

| Living Things | Beginning Status | Observable Changes | | |
|---------------|------------------|--------------------|--------|--------|
| | | Week 1 | Week 2 | Week 3 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| Non-Living Things | Beginning Status | Observable Changes | | |
|-------------------|------------------|--------------------|--------|--------|
| | | Week 1 | Week 2 | Week 3 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Analyzing and Interpreting: (p. 18)

7. _____

8. _____

| Living | Non-living |
|--------|------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |

9. _____

Forming Conclusions:

10. _____

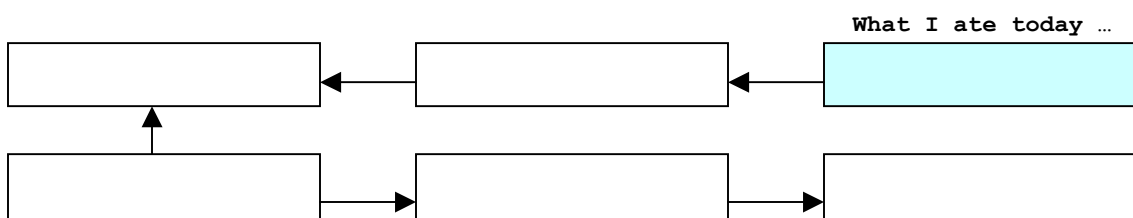
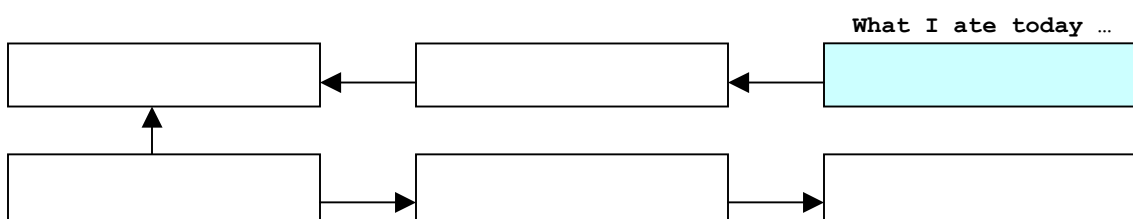
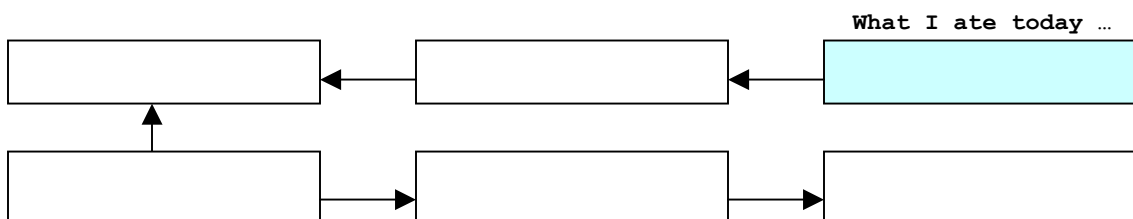
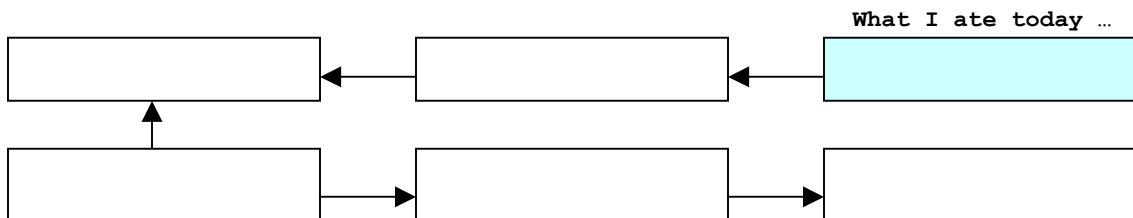
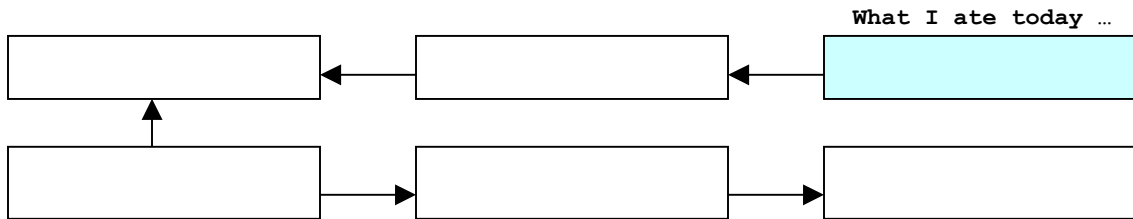
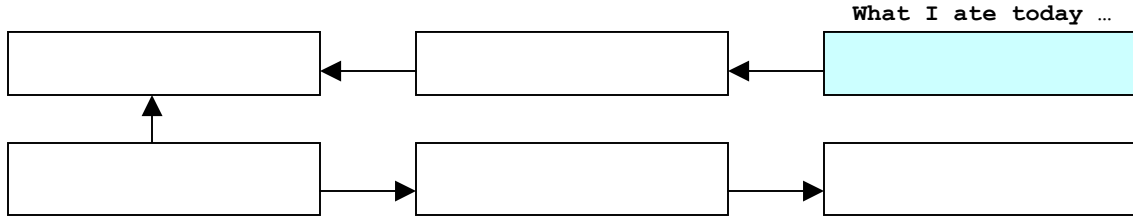
Give It A TRY

Impacts On Ecosystems (p. 20)

| Situation | Impacts |
|--|---|
| A student throwing a candy wrapper on the ground | <ul style="list-style-type: none">➤ _____➤ _____➤ _____ |
| A student riding a mountain bike on a thin trail through the forest. | <ul style="list-style-type: none">➤ _____➤ _____➤ _____ |
| A farmer plowing a field | <ul style="list-style-type: none">➤ _____➤ _____➤ _____ |
| A person involved in a strip-mining operation | <ul style="list-style-type: none">➤ _____➤ _____➤ _____ |
| A fisheries biologist adding trout to a lake | <ul style="list-style-type: none">➤ _____➤ _____➤ _____ |
| A biologist cleaning oil off the wings of a duck | <ul style="list-style-type: none">➤ _____➤ _____➤ _____ |
| | <ul style="list-style-type: none">➤ _____➤ _____➤ _____ |

Give It A TRY

Where Did That Food Come From? (p. 36)



The food source I seem to depend on is _____

Inquiry 1-D

Food Web Chain Reaction (p. 40-41)

Question: How do abiotic and biotic factors in the forest ecosystem affect the complete food web of the forest?

Hypothesis: _____

Procedure: (p. 40-41)

Part 1 - Modelling A Forest Ecosystem

Part 2 - Impacts on the Forest Ecosystem

Analyzing and Interpreting:

9. _____

10. _____

11.

12. a) _____

b) _____

c) _____

Applying and Connecting:

Flooding in Mozambique

(Start Here) <http://www.disasterrelief.org/Disasters/000328mozambique13/>

Inquiry 1-E

Human Impact In The Schoolyard (p. 52-53)

Question: Has human impact affected the distribution of living things in the schoolyard?

Hypothesis: _____

Materials & Procedure: (p. 52)

Data Collection: (Quadrant Sampling)

| Schoolyard Observations | | |
|---------------------------------|--------------------------------------|-------------------------------------|
| | Little or No Human Impact | Significant Human Impact |
| date/time | | |
| temperature | | |
| wind speed | | |
| light intensity (bright, sunny) | | |
| soil condition (wet, dry) | | |
| number/type of plants | | |
| | | |
| | | |
| | | |
| number/type of animals | | |
| | | |
| | | |
| | | |

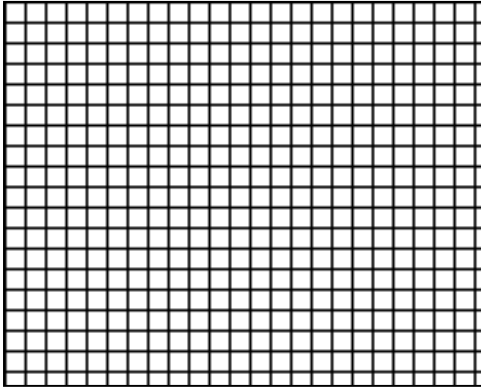
Analyzing and Interpreting:

7. _____

8. _____

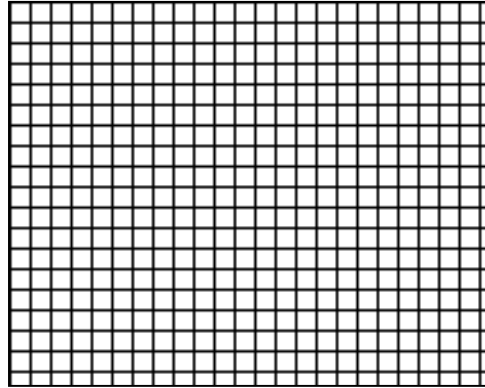
Graph A

Title _____



Graph B

Title _____



9. _____

10. _____

Forming Conclusions:

11. _____

Applying and Connecting:

Quadrant Analysis ([Lab](#))

Extending: (Optional)

Use Quadrant Analysis to determine the number of dandelions in your schoolyard

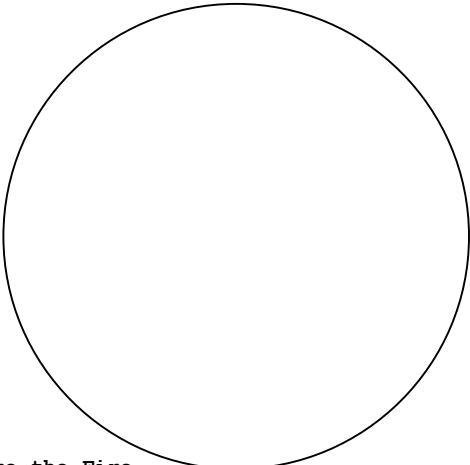
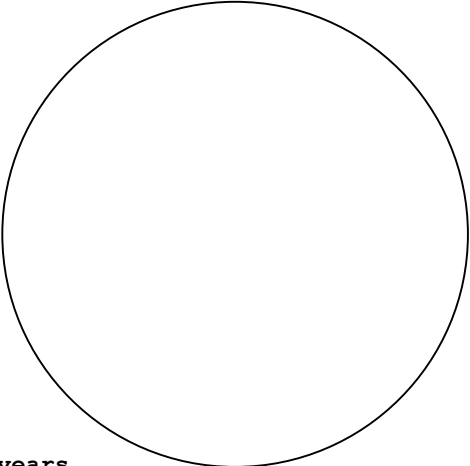
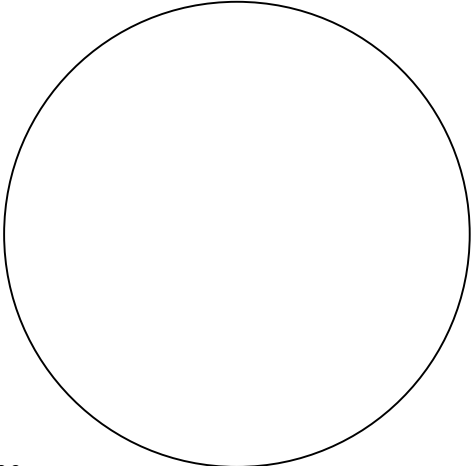
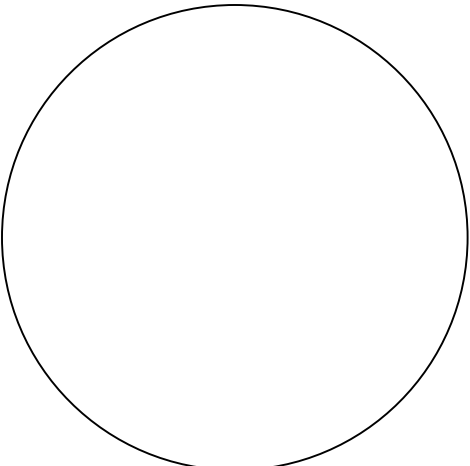
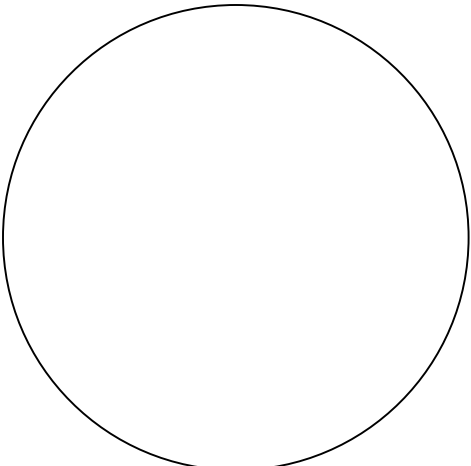
(_____ [Dandelions](#) - 'Estimated Number')

<http://www.gnc.com/health notes/Herb/Dandelion.htm>

Use the link above to find out how Dandelions are used as Herbal Remedies!

Give It A TRY

To Change Or Not To Change? (p. 55)

| | | |
|--|--|---|
|  <p>Before the Fire</p> | <p>Biotic Factors</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> | <p>Abiotic Factors</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> |
|  <p>50 years</p> |  <p>100 years</p> | |
|  <p>150 years</p> |  <p>Distant Future</p> | |

Reference Websites

A Good Forest Fire

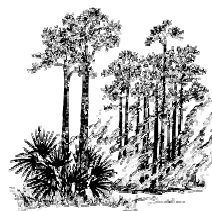
<http://www.smokeybear.com/prescribed.asp>

The Science of Wildfires

<http://www.smokeybear.com/science.asp>

Forces of Nature

<http://library.thinkquest.org/C003603/english/forestfires/index.shtml>



Inquiry 1-F

Survival In The Field (p. 58-59)

Question: How does competition between two species affect their numbers and health?

Hypothesis: _____

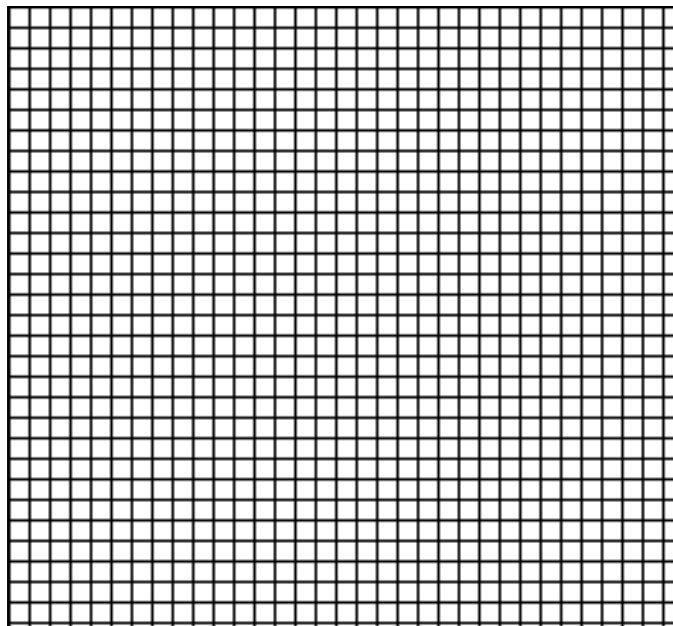
Materials & Procedure: (p. 58-59)

Data Collection:

| Species | Round 1 | Round 2 | Round 3 | Round 4 | Round 5 |
|---------|---------|---------|---------|---------|---------|
| Fork 1 | | | | | |
| Fork 2 | | | | | |
| Fork 3 | | | | | |
| Fork 4 | | | | | |
| Spoon 1 | | | | | |
| Spoon 2 | | | | | |
| Spoon 3 | | | | | |
| Spoon 4 | | | | | |

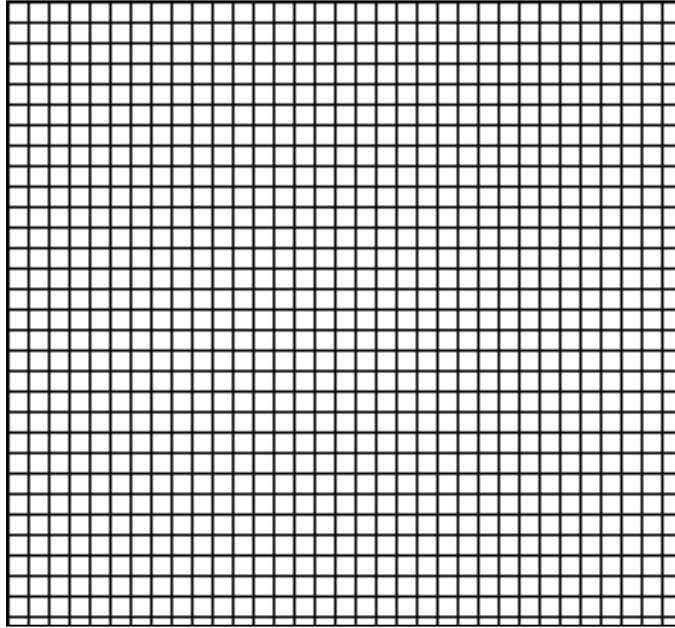
Analyzing and Interpreting:

7. Line Graph Title _____



8. _____

9. Bar Graph Title _____



10. _____

11. _____

Forming Conclusions:

12. _____

Applying and Connecting:

Competing for Resources in _____ (Community)
(Attach Your Report)

Competition Between Three or More Species (p. 61)

Question: How does competition affect the number of plant populations in an ecosystem?

1. *Hypothesis:* _____

2. *Description of Study sample*

a) _____

b) _____

c) _____

d) _____

3. *Procedural Plan*

a) _____

b) _____

c) _____

d) _____

e) _____

f) _____

4. *Materials:*

Give It A TRY

Can You Identify The Pioneer Species? (p. 62)

Which ones are Pioneer Species? 3.8a) 3.8b) 3.8c)

Reasoning: _____

Decision-Making 1-H

Crossing the Border (p70)

Opinion: _____

Try This at HOME

Impacts On The Environment (p. 72)

4.5a) _____

4.5b) _____

4.5c) _____

Give It A TRY

Investigating the Elk population (p. 73)

➤ _____

➤ _____

➤ _____

➤ _____

➤ _____

➤ _____

Conserving the Elk Population of Alberta

http://www.rmef.org/conservation_section.html?main=/S002alb.html

Decision-Making 1-I

What Can You Do To Reduce Your Ecological Footprint? (p.80-81)

| Activity 1 Water | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Activity</th> <th style="width: 40%;">Use</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> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <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> | Activity | Use | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|-----------------|---------------|------------|---------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Activity | Use | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Activity 2 Waste And Pollution | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">organic</th> <th style="width: 25%;">inorganic</th> <th style="width: 25%;">recyclable</th> <th style="width: 25%;">miscellaneous</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> | organic | inorganic | recyclable | miscellaneous | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| organic | inorganic | recyclable | miscellaneous | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Activity 3 Materials And Goods | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Items Purchased</th> <th style="width: 15%;">Cost</th> <th style="width: 20%;">Essential</th> <th style="width: 30%;">Non-essential</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> | Items Purchased | Cost | Essential | Non-essential | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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12. Support Your Opinion

Plan: _____

Forest Harvesting

Resources to help you get started ...

- **Forest Management in Alberta**
 - <http://www.borealcentre.ca/facts/forestry.pdf>
- **Forestry**
 - <http://www.lethsd.ab.ca/mmh/grade4/altaresources/forestry.htm>
- **Forest Practices**
 - http://nofc.cfs.nrcan.gc.ca/biodiversity/en/practices/practices_e.html
- **Forest Harvesting Impacts**
 - <http://www.agric.gov.ab.ca/sustain/woodlot/woodlot5.html>

Continue to find additional resources to answer the questions:

What methods can be used to harvest Canada's Forests?

- _____
- _____
- _____
- _____
- _____

What factors need to be considered when deciding how to harvest trees?

- _____
- _____
- _____
- _____
- _____