Lab Notebook

Index of Investigations, Challenges and Activities

Plants for Food and Fibre

Give It A TRY

Survivor! (p. 96)

Food	Clothing	Shelter

Give It A TRY

Plant Parts Charades (p. 99)

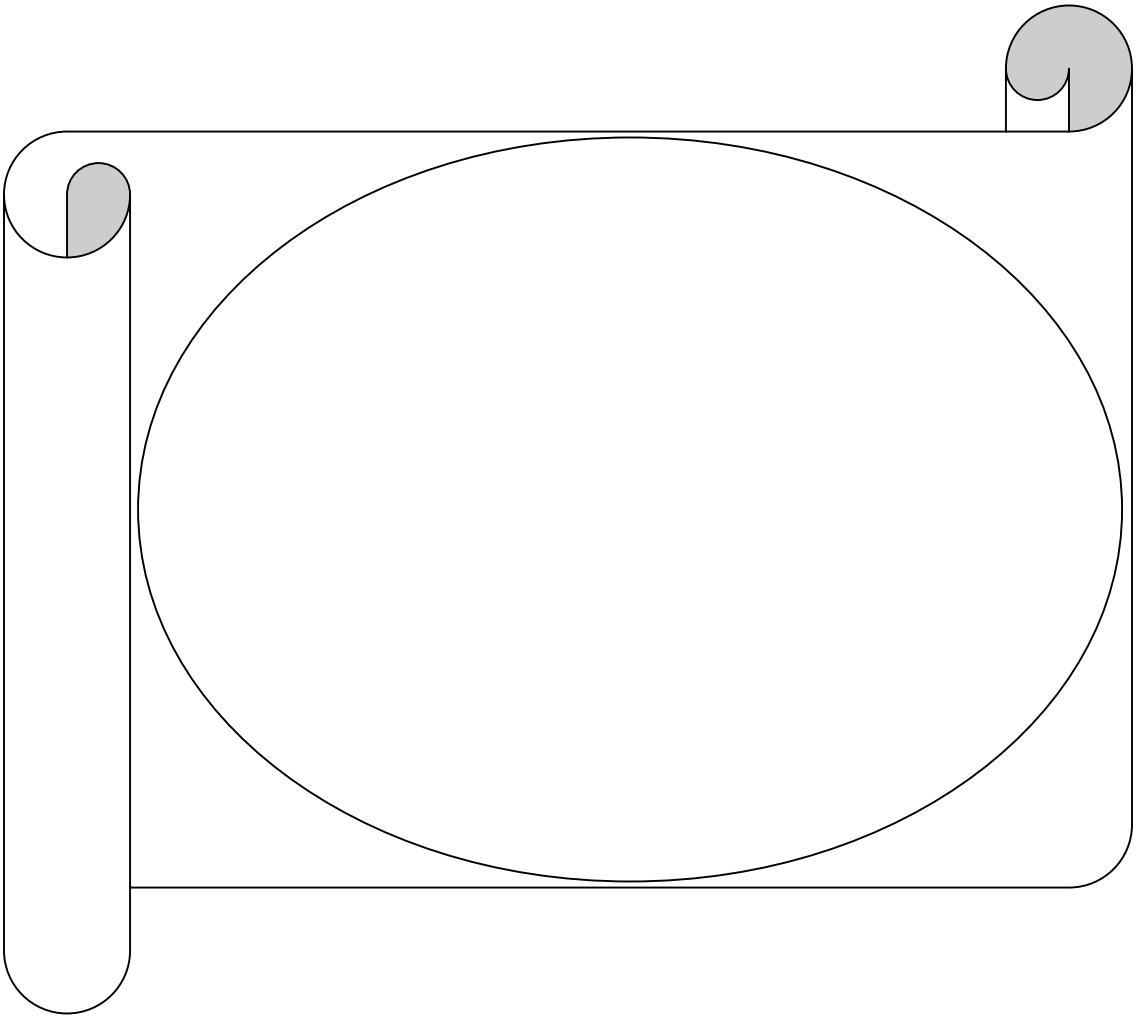
Stems - are the main structure of a plant, providing support and carrying nutrients and water for leaves, flowers and fruits. 	**Leaves -** are lateral outgrowths; most commonly flat, broad and green, which produce food for the plant. 
Roots - absorb nutrients and water, anchor the plant in the soil, provide support for the stem, and store food. 	**Flowers/Fruit/Seeds -** are the **seed**-producing parts of a plant. The function of flowers is sexual reproduction. 

Problem-Solving 2-A

Design A Model Of A Seed Plant (p. 100)

Seed structures	How they are represented in the Model

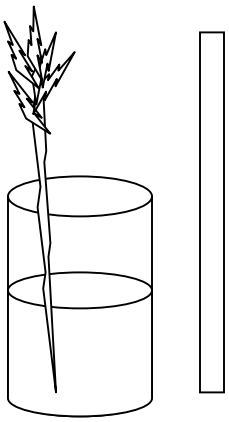
Labeled Diagram (Scientific Illustration) of Seed Model



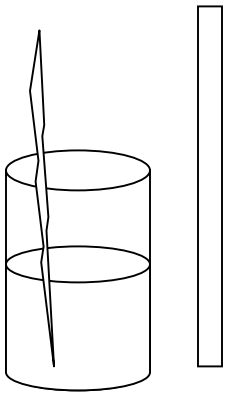
Give It A TRY

Moving In The Right Direction (p. 102)

For the celery samples that were used, color the bar to the height the water was drawn up.



With leaves



Without leaves

Interpretation: _____

_____

_____

Inquiry 2-B

Plants At Work (p. 105)

Question: **How does transpiration move fluids from the roots?**

Hypothesis: _____

_____

Materials and Procedure: (p. 105)

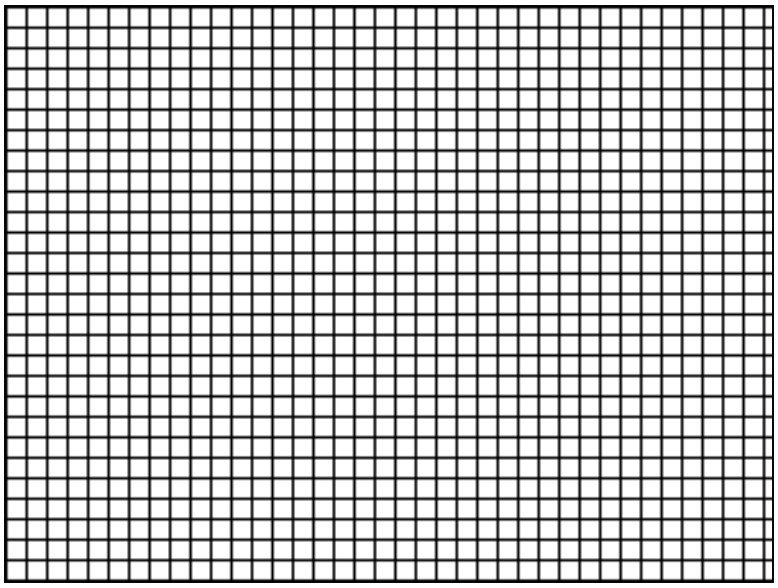
(Note: This Lab Activity requires **2 plant cuttings**)

Amount of water (ml) **left in beaker:**

Plant Cutting	Day 1	Day 2
1 (no leaves)		
2 (leaves)		

Data Collection:

Plant Cutting 1 (estimated area of all the leaves)

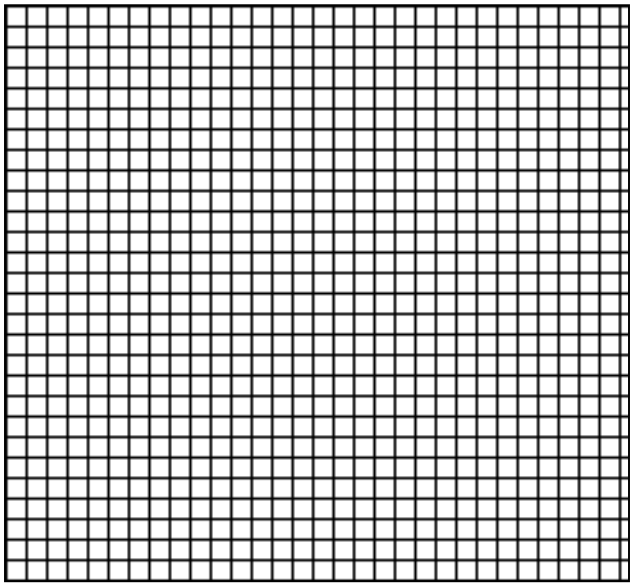


Total **Area** the leaves:

_____

Analyzing and Interpreting: (p. 18)

10. **Bar Graph** (Title) _____



Forming Conclusions:

11. _____

_____

12. _____

Applying and Connecting: (Watch a Plant Wilt / Wilting Point)
http://sunflower.bio.indiana.edu/~rhangart/plantmotion/vegetative/wilting/wilt.html
http://www.esb.utexas.edu/solberg/Plant%20Phys%20Project/Plant%20Attributes/wiltpoint.html

Experiment On Your OWN 2-C

Light and Plant Growth (p. 108)

Question: **Do plants grow faster when they get more light?**

Design of Experiment

1. *Hypothesis:* _____

_____

2. *Materials:*

a) _____

b) _____

c) _____

d) _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

3. *Procedural Plan*

a) _____

b) _____

c) _____

d) _____

e) _____

4. *Procedure:*

Step 1 _____

Step 2 _____

Step 3 _____

Step 4 _____

Step 5 _____

Step 6 _____

Step 7 _____

Step 8 _____

Step 9 _____

5/6. *Experimental Results (Conclusion)*

_____

_____

_____

_____

7. *Follow-up Analysis:*

_____

_____

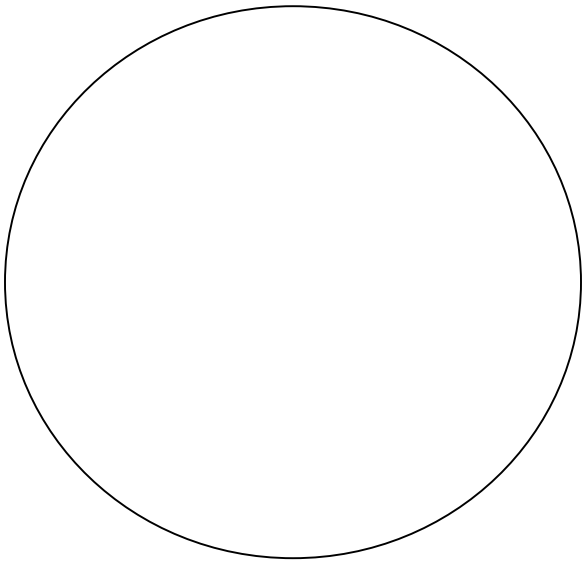
_____

_____

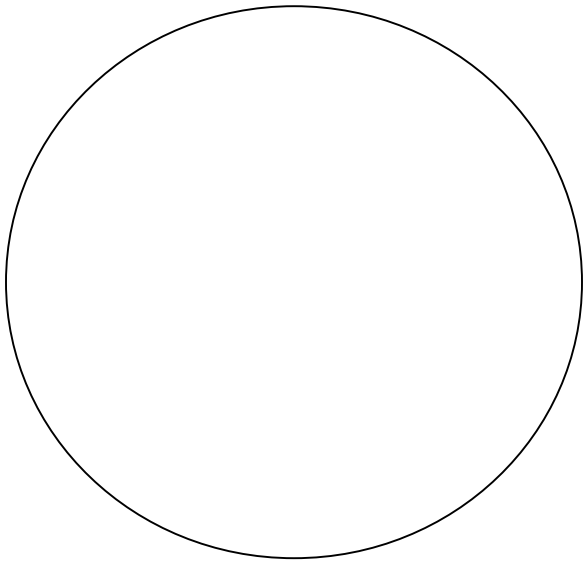
_____

Give It A TRY

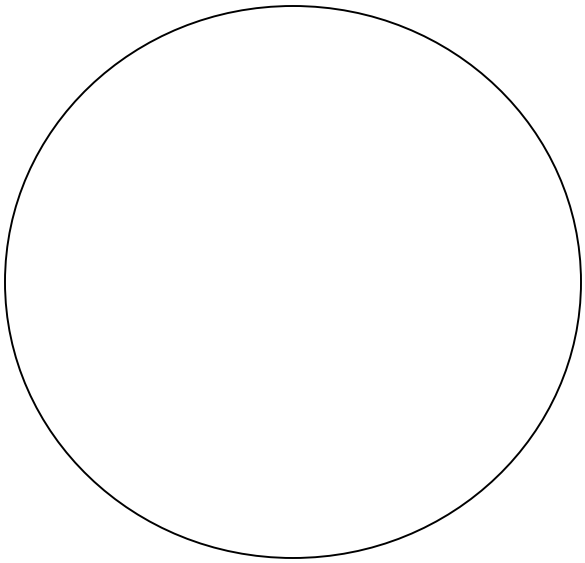
The Secret of Seeds (p. 109)



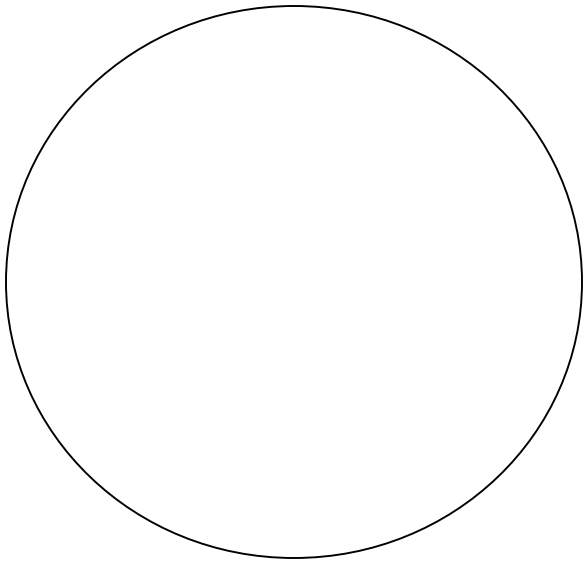
Seed 1 _____



Seed 2 _____



Seed 3 _____



Seed 4 _____

➢ _____

_____

➢ _____

_____

Problem-Solving 2-D

Germination and Growth (p. 112-113)

Problem: What is the best method for growing seedlings in a greenhouse?

1 – plastic **bags** with moist inserts (attached to the wall)
(Materials & Equipment p. 112)

2 – different **packing densities**
(Materials & Equipment p. 113)

3 – best method to prevent **moulding**
(Materials & Equipment p. 113)

Test and Evaluate:

5. *Procedural Plan:*

Step 1 _____

Step 2 _____

Step 3 _____

Step 4 _____

Step 5 _____

Step 6 _____

Step 7 _____

Step 8 _____

Step 9 _____

Step 10 _____

Step 11 _____

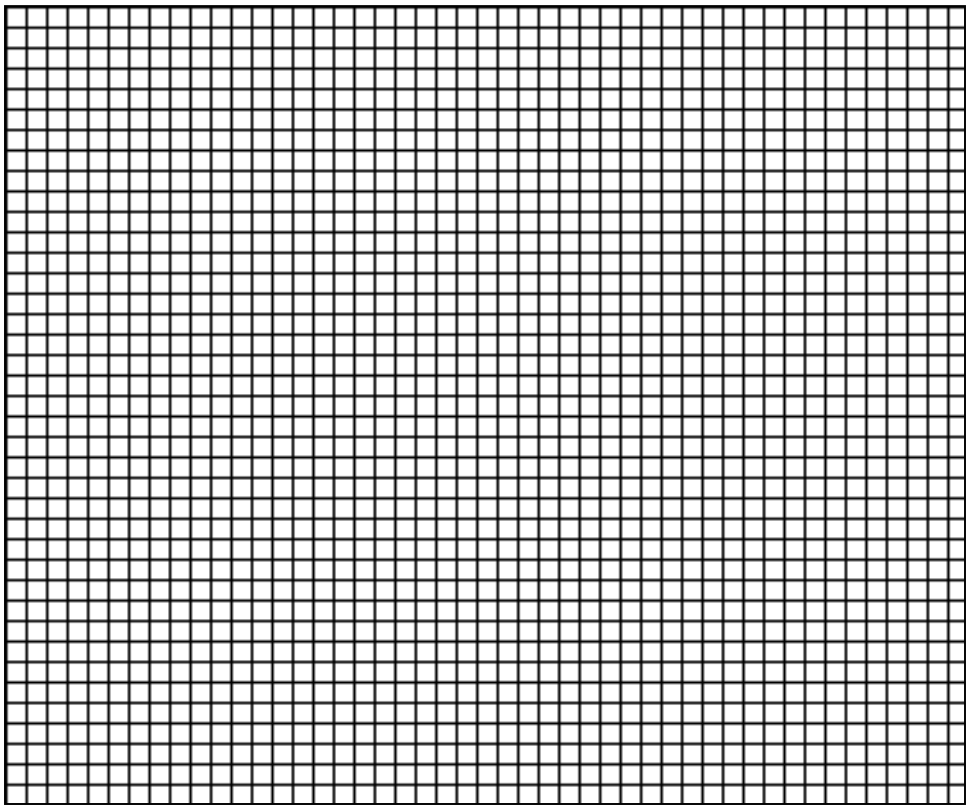
Test and Evaluate:

6. Observations and Data Collection:

Idea 1	
Idea 2	
Idea 3	

7. Graph of Results

Title: _____



Communicate: (Summary Report – Conclusion)

8. _____

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Give It A TRY

Beneath Your Feet (p. 116)

	Plant Parts Observed and Identified					
Photos p. 116	Roots	Stem	Leaves	Flower	Seeds	Adaptation
		☺	☺			
Figure 1.25 (coniferous tree)						
Figure 1.26 (deciduous tree)						
Figure 1.27 (grass)						
Figure 1.28 (aquatic flower)						
Figure 1.29 (succulent)						
Figure 1.30 (alpine flower)						

Problem-Solving 2-E

Creating A Lesson About Flowers (p. 117)

Problem: Create a fun and interesting way to present **variations in flowers** to Grade 1 students

Criteria: (partner or small group (3) activity)

- **5 flowers (**w/ parts labeled**)**
- **creative – fun to watch**
- **time limit (**10 min**)**

Ideas:

Flowers used:

Communicate: (Self-evaluation)

Give It A TRY

Planting A Virtual Garden (p. 121)

Available Plant Tags – or, Get yours from your local Nursery

Plant Tags Chosen	Reasons	

Tag Exposure Symbols:		Other Tag Symbols:			
	Full Sun		Alpine Plant		Good cut flower
	Partial Sun/Partial Shade		Evergreen Foliage		Drought Tolerant
	Full Shade		Groundcover		Attracts Hummingbirds
			Good for container growing		Attracts Butterflies

One plant type in the entire garden would …

➢ _____

_____

_____

_____

_____

_____

Inquiry 2-F

Investigating Growing Conditions (p. 123)

Question: **Does the amount of water a radish plant receives affect its growth?**

Hypothesis: _____

_____

Procedure: (p. 123) Ref: **Toolbox 2**

Step 1 _____

Step 2 _____

Step 3 _____

Step 4 _____

Step 5 _____

Step 6 _____

Step 7 _____

Step 8 _____

Step 9 _____

Step 10 _____

Data Collection (design your own table)***:*** (p. 123)

Analyzing and Interpreting:

6. _____

_____

7. _____

_____

8. _____

_____

Forming Conclusions:

9. _____

_____

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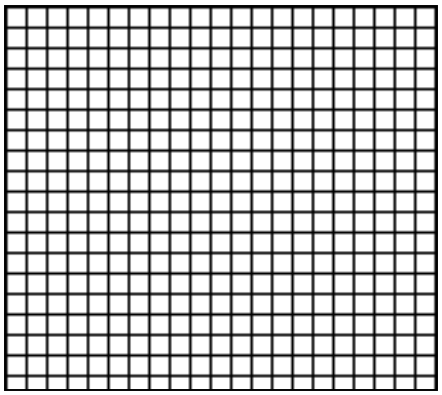
_____

_____

_____



_____

_____

_____

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_____

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_____

_____

_____

Applying and Connecting:

Give It A TRY

Nature's Connections (p. 127)

Plants	Animals
 Figure 2.2	 Figure 2.5
 Figure 2.3	 Figure 2.6
 Figure 2.4	 Figure 2.7

Problem Solving 2-G

Why In The World Do We Need Plants (p. 128)

Question: **What are the essential role of plants around the school?**

Hypothesis: _____

_____

Materials & Procedure: (p. 128) ***Data Collection:***

Essential Role of Plants	Examples around the school …
Provide oxygen	
Provide shelter	
Provide food	
Build and protect the soil	

Communicate: Report your results on a separate sheet

Extending: (Optional)

Begin here: Bio regions of Alberta
http://raysweb.net/specialplaces/pages/places.html

Supplementary Reference

COMMON TREES, SHRUBS AND HERBS IN ALBERTA

Scientific Name	Common Name		Scientific Name	Common Name
TREES			**SHRUBS**	
Abies balsamea	Balsam Fir		Juniperus horizontalis	Juniper
Picea glauca	White Spruce		Prunus	Mancurian Cherry
Picea pungens	Blue Spruce		Cornus stolonifera	Red Osier Dogwood
Pinus strobus	Eastern White Pine		Lonicera	Honeysuckle
Pinus albicaulis	White-bark Pine		**HERBS**	
Pinus banksiana	Jack Pine		Festuca	Fescue
Pinus mugo	Mugo Pine		Dactylis	Orchard Grass
Pinus contorta	Lodgepole Pine		Poa pratensis	Kentucky Bluegrass
Betula	White Birch		Plantago major	Common Plantain
Populus tremuloides	Trembling Aspen		Arctium minus	Burdock
Sorbus decora	Mountain Ash		Taraxacum officinales	Dandelion

Give It A TRY

When Is A Tree Not A Tree? (p. 130)

Sample Item	Plant used to make it …
Pencil	
Paper	
Perfume	
Skin care lotion	
Baseball bat	
Bread	
Table	
Throat lozenges	
t-shirt	
Rope	
Dog food	
House	

Give It A TRY

Using A Living Resource (p. 133)

Area _____

After being used as a resource by humans …

- _____
- _____
- _____
- _____
- _____
- _____

Inquiry 2-H

Communicating Ideas About A Managed Resource (p. 134)

Task: **To make a mini-pamphlet that explains how a forest region is used.**

Forest Region Studied _____

Inside of Pamphlet

Outside of Pamphlet

Self-Evaluation _____

_____

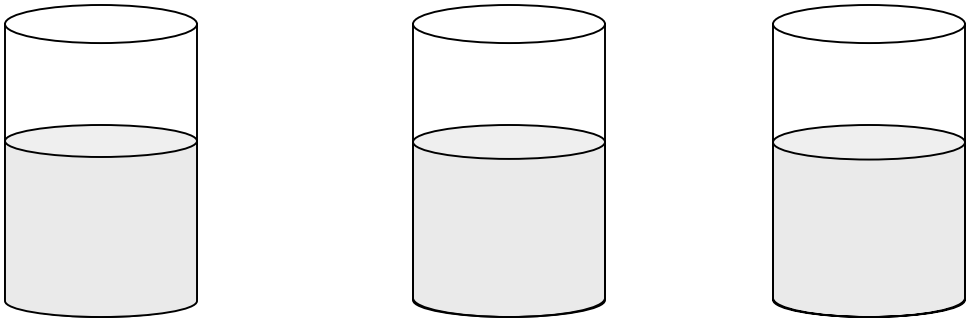
_____

_____

_____

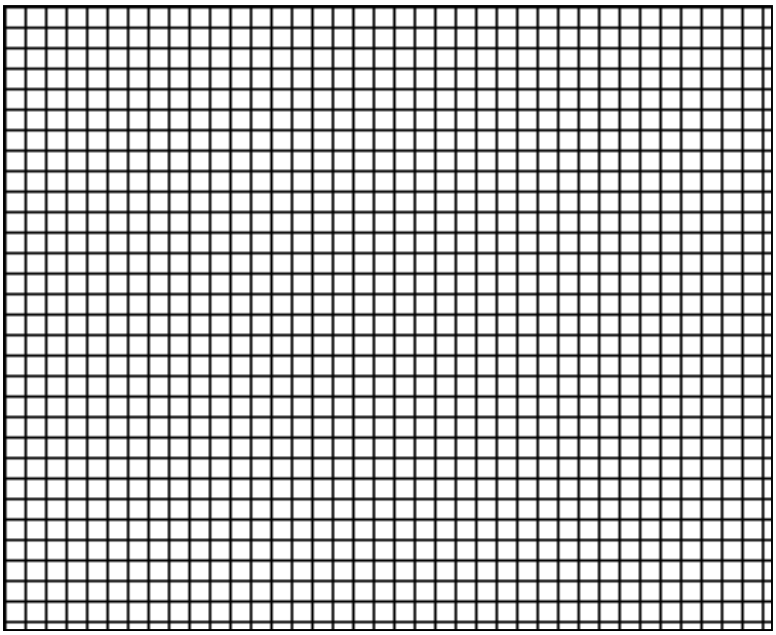
Give It A TRY

All Soils Are Not Created Equal (p. 139)



clay	loam	sand

Title _____



- **holds water best** _____
- **best for drainage** _____
- **used to construct earthen dams** _____

Problem Solving 2-I

Designer Soil (p. 140)

Problem: **How will you mix the materials available to you with clay soil to make it more like loam?**

Hypothesis: _____

_____

2. *Materials available*

_____ _____

_____ _____

_____ _____

Test and Evaluate:

Communicate: 'Recipe' for Loam

Step 1 _____

Step 2 _____

Step 3 _____

Step 4 _____

Step 5 _____

Step 6 _____

Step 7 _____

Step 8 _____

Step 9 _____

9. _____

_____

10. _____

_____

TRY This at Home

How Does Your garden Grow? (p. 142)

Soil in Flowerbed	Soil elsewhere
Description	**Description**

Give It A TRY

Human Activity And The Soil (p. 143)

Situation	How it helps the soil	How it harms the soil
A farmer puts manure on his fields		
A potato farmer irrigates her crop		
The stubble that is left when a grain crop is harvested, is plowed into the soil		
Make up your own situation in the last row		

Decision-Making 2-J

Fertilizers and Soil (p. 146)

Opinion: _____

_____

_____

_____

_____

_____

_____

_____

_____

Get a copy of **Customs Form E311**
http://www.ccra-adrc.gc.ca/E/pbg/cf/e311/e311-03b.pdf

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=/SO02alb.html

Decision-Making 9-A

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

Activity 1 **Water**	

Activity	Use

Activity 2

Waste And Pollution

organic	inorganic	recyclable	miscellaneous

Activity 3

Materials And Goods

Items Purchased	Cost	Essential	Non-essential

12. Support Your Opinion

Plan: _____

_____

_____

SCIENCE  WORLD

Case Study

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?

- _____
- _____
- _____
- _____
- _____