TABLE OF CONTENTS[1]

DATE	DESCRIPTION	PAGE #

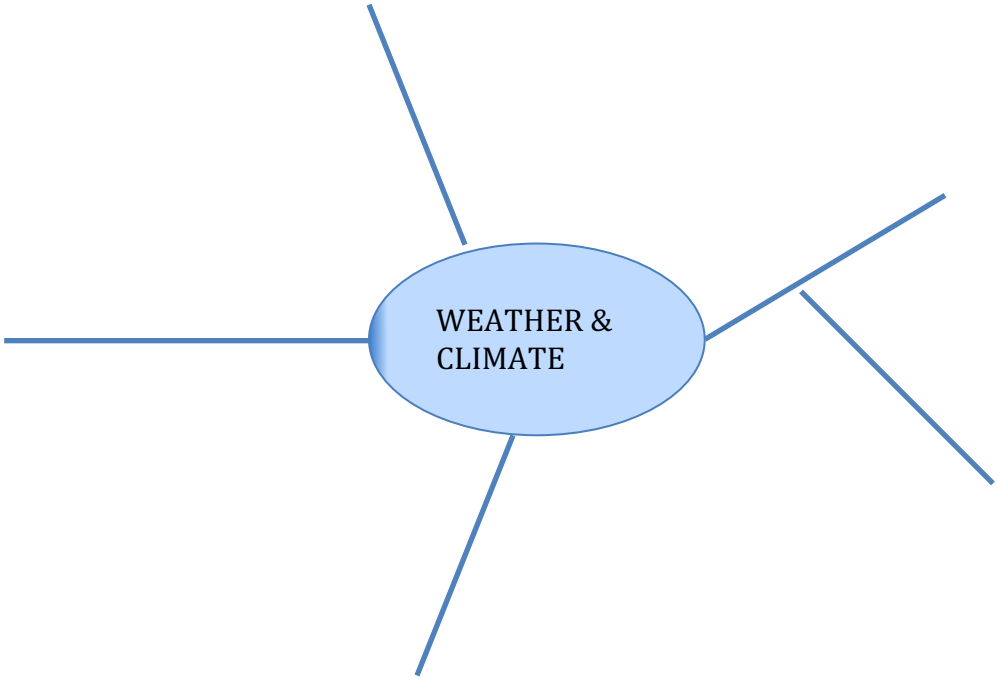
[1] You may need to duplicate this page 2 or 3 times for each student.

LESSON 1 DATE: _____

B

FQ[2]: What is an example of a catastrophic event? Where do catastrophic events occur?

D



(There is also a mapping activity.)

A

LESSON 2 DATE: _____

B

FQ: What do we know about the causes and effects of storms?
How does a vortex tube serve as a model of a storm?

D

(Use NB's for *Getting Started*, *Reflecting*, SG p 27)

A

You might have the students use the Frayer Model to define ***vortex.***

(see Frayer Model, NOTES pages)

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[2] The Learning Line or Line of Learning –After a post-lesson discussion or *Reflecting..*, students record any new ideas, or revised thinking, or new questions that may have emerged. (See NOTES for fuller explanation.)

LESSON 3 DATE: _____

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[2] FQ = FOCUS QUESTION. This can serve as the entry title or description. Why use a question for a title? (For more information on FQ's, see NOTES at end of this document.)

B

FQ: How do different surfaces on the Earth absorb and retain the sun's energy?

How would you describe the heat transfer in this system?

D

Homework Sheet 2.1 is reviewed during *Getting Started.* Sheet 3.1 is used during Inquiry 3.1. Both can be glued or stapled here.

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To help students with their graphing, see NOTES at end of this doc.

A

Complete *Reflecting…* SG p.45 here. Sheet 3.1 might be glued or stapled here.

FQ: How would you describe the interaction between the Earth's surface and the temperature of the air above it.

How would you describe the transfer of energy from the sun to the Earth's atmosphere.

What is the relationship between the temperature of air and its moisture content?

NB: There are 3 Focus Questions –and 2 Inquiries-, so students might need a new page to address each of them

Getting Started, SG p.60: Review sheet 3.1b

Inquiry 4.1

Student Sheet 4.1 helps to guide students through this inquiry. Glue or staple it here.

Learning line

Inquiry 4.1

Reflecting.. SG p 45

Inquiry 4.2

Reflecting, SG p 48

LESSON 5 DATE: _____

FQ: Why does the wind blow?

How do convection currents transfer energy from one place to another?

Getting Started, SG p.55: Review what was discovered in Lesson 4. Review "Air Masses", SG p 49.

Inquiry 5.1

Student Sheet 5.1a helps to guide students through this inquiry. Glue or staple it here.

Reflecting.. SG p 58

(Management tip: You might find it efficient to discuss some of the questions, while having students write responses to 1-2 Q's here.)

LESSON 6 DATE: _____

FQ: How does the sun's energy drive the water cycle?

How is temperature and air pressure involved in cloud formation?

Use the box to describe 5-7 features that maps A, B, and C share.

Map A	Map B	Map C
Use these columns to tell what is unique about each map.		

Inquiry 6.1

Follow the instructions for this inquiry in SG 98. Show what you created. Use each box to draw & the sentence fragment to explain what you tried:

A] Diagram of water cycle:

B] How does water temperature affect evaporation & condensation?

C] Write a plan for using the materials to Question B.
What do you predict will happen?

D] What happens when you rub an ice cube Test on the bottle? ...your hands?

Inquiry 6.2

Directions SG p 100.

A] Name the ingredients of cloud formation.

B] How can you create cloud conditions in the bottle?

C] How can you create HIGH and LOW pressure in the bottle?

D] How will you keep track of your predictions & observations?

Inquiry 6.3

(*SG 102, in NB, design data table & record weather obs. Over 5 days)*

Inquiry 6.4

(*SG 105, use weather maps from Inquiry 6.1. Answer questions here.)*

Inquiry 6.5

(*Using data from 6.3. SG)*

NOTEBOOK Form & Function:

- Save a few pages at the front of the notebook for the Table of Contents.
- Number the remaining pages, starting with #1 on a right-hand page (traditional.) Numbers placed on the outside corner are easy to find when flipping through the book.
- You may want students to begin an *In my own Words Glossary* at the back page, moving forward in the notebook, as needed.
- Title (Focus Q) and date each entry.
- You might consider having students keep a special tabbed section for reading responses.

Why use a question for a title? Since science is all about answering questions, using a question as the title helps the writer know when a lesson is completed (–basically when the question has been answered.)

Deciding on the Focus Question, or Title -This is an essential skill and should be mastered by all students before moving onto middle school. Here's a way to support students through the grades:

- *K2 and early 1st grade*: Before deciding on a title, have a class discussion (if you are short for time, have a short discussion, but the discussion is important). Write a short title and let them copy it. It's great IF they come up with a different title on their own.
- *1st and 2nd grade*: they should come up with a title on their own, but it may not always be written as a question.
- 3rd grade: they usually copy a question that I write on the board, We always discuss the best way of phrasing the question and I often edit the question as a result of the discussion as an effort to keep it succinct.
- *4th and 5th grade:* They are expected to come up with their own questions. However, we still brainstorm ways of phrasing it. Getting the questions 'just right' takes some effort.

Having difficulty with students coming up with a useful question to guide their work? Then take time at the beginning to have a thoughtful class discussion to brainstorm possibilities.

•••

"Line of Learning" (or "Learning Line"): Many times it is important to have a class discussion before reaching closure on a particular notebook entry. In these cases, have student draw a ling across the page after the last of his/her writing. This is the Line of Learning. After the discussion, review, more work, etc, the student will want to add more comments, but they should come after the Line of Learning. This helps students to changes in learning. This is an important form of revising. (Lstheroux, 9_15_03)
You might assign a portion of the *Reflecting* questions or something as simple as a wrap-up sentence starter to use below the Line of Learning.

•••

Remember the important parts of a good graph –unscramble the letters of these words- to create a graph word bank:

lteit

xeas

bealls

rnaeg

lseca

eetenpdnd

elirbava

aadt

rcensitnem

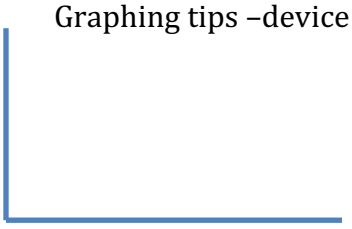
_____

Answer Key for scrambled Graph Word Bank:

Title	Scale
Axes	Dependent
Labels	Data
Range	Increment

•••

Graphing tips –device to remember the language of graphing



D	Dependent	Manipulated
R	Responsive	Independent
Y	Y axis	X axis

M I X

•••

From http://www.teachingideas.co.uk/science/contents.htm

I shrunk this to fit here. See actual size, and other forms at this web site.

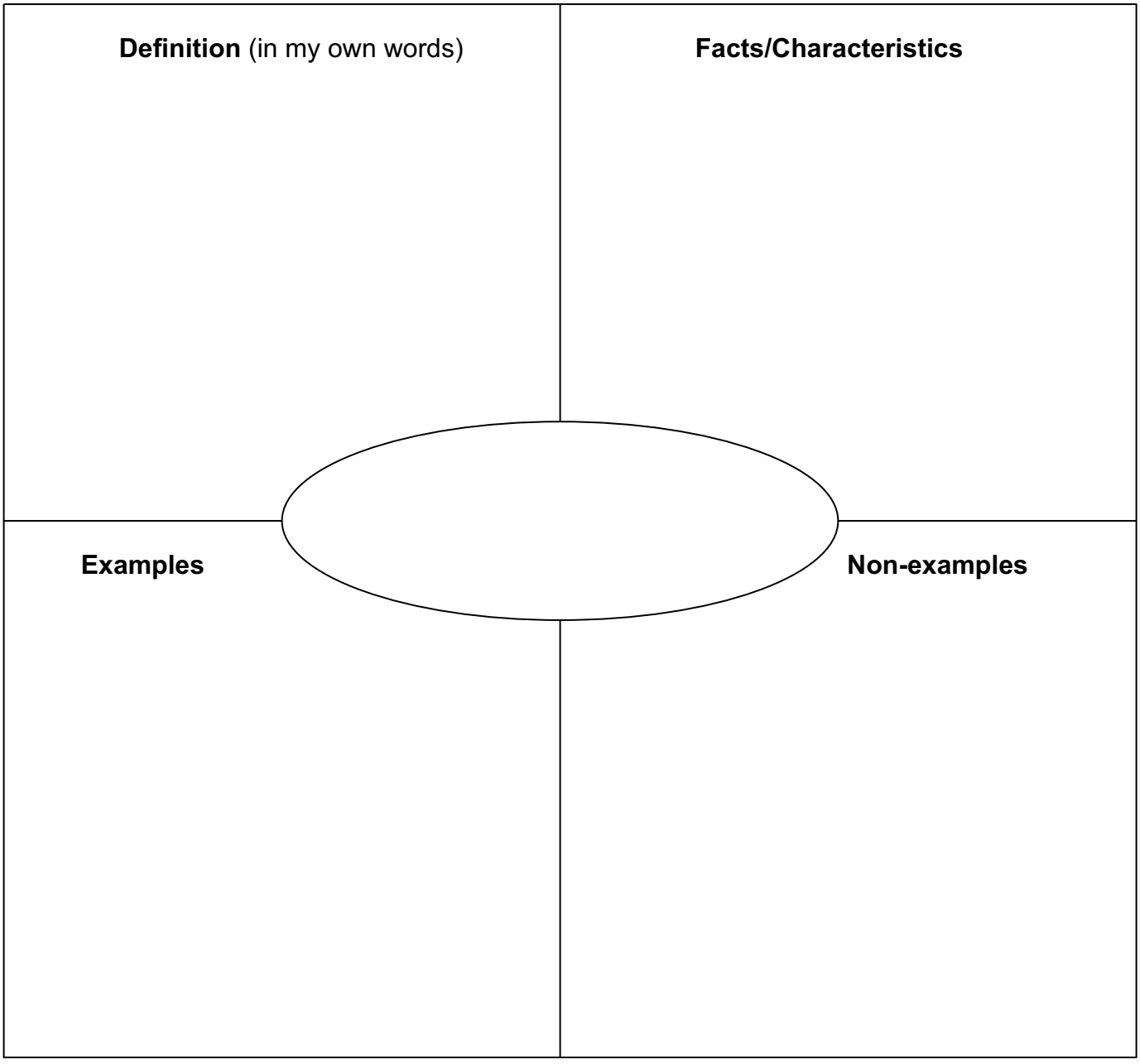
Investigating planning sheet

YEAR 5

Question – *what do you want to find out?*
Equipment *I will use……*
Prediction *I think……*
Factor to change
Factor to measure
Fair test – *What will I keep the same?*
Factor to observe
Results table – *How will I make my results reliable?*
Conclusion *What did I find out?* *How does this relate to my prediction?* *Why did this happen?*

Frayer Model

A great graphic organizer for vocabulary. Try this for lesson 2, where students have to define 'vortex'.



Questions: