

Unit 1.4: Earth and Space Science – Pollution & Recycling

Weekly Focus: Main Idea & Supporting Details
Weekly Skill: Scientific Method

Lesson Summary: This week students will read for the main idea with a passage on recycling. Students will use charts to answer questions about local recycling statistics. Students will also begin to understand the scientific method.

Materials Needed:

- Main idea reading [Unit 1.4 Handout 1](#)
- Graph [Unit 1.4 Handout 2](#),
- Reading on Scientific Method: [Unit 1.4 Handout 3](#) (Spectrum Science, Gr. 6, pages 8-9)
- Homework [Unit 1.4 Handout 4](#) (Six-Way Paragraphs in the Content Areas, Advanced Level, pages 186-187)

Objectives: Students will be able to...

- Determine main idea and supporting details in a multi-paragraph passage.
- Find information from a graph to answer questions.
- Begin to understand the components of the scientific method

College and Career Readiness Standards: RI, RST, WHST

ACES Skills Addressed: N, LS, AL, CT, SM

Notes:

Please review classroom routine notes for: reading for fluency strategies (**Routine 2**—use with [Unit 1.4 Handout 1](#)), summarizing techniques (**Routine 4**—use with [Unit 1.4 Handout 1](#)). The notes will help with making a smooth transition to each activity. If you feel the subject matter, pollution and recycling, is controversial for students in your class, review **Routine 5: Handling Controversial Topics** in classroom routines.

GED 2014 Science Test Overview – For Teachers and Students

The GED Science Test will be 90 minutes long and include approximately 34 questions with a total score value of 40. The questions will have focus on three content areas: life science (~40%), physical science (~40%), and Earth and space science (~20%). Students may be asked to read, analyze, understand, and extract information from a scientific reading, a news brief, a diagram, graph, table, or other material with scientific data and concepts or ideas.

The online test may consist of multiple choice, drop down menu, and fill-in-the-blank questions. There will also be a short answer portion (suggested 10 minutes) where students may have to

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summarize, find evidence (supporting details), and reason or make a conclusion from the information (data) presented.

The work students are doing in class will help them with the GED Science Test. They are also learning skills that will help in many other areas of their lives.

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Activities:

Warm-Up:

Time: 10 minutes

Today's lesson is about find the main idea in a reading passage and from chart on recycling. In order to get some brainstorming prior to reading, have students write down what some possible benefits to recycling could be. You can do this by writing on the board "What are some benefits of recycling?" Students can do this brainstorming/warm up activity individually or in pairs. Then, share answers with the entire group. These can be "predictions" of what may be in the reading.

Activity 1: Main Idea Reading (Unit 1.4 Handout 1)

Time: 30 minutes

- 1) Hand out ([Unit 1.4- Handout 1](#)) to students.
- 2) Explain they are going to read the passage and find the main idea. While reading, students should think to themselves "What is this all about? What idea is the author trying to say?"
- 3) Students should read passage silently and answer questions.
- 4) Review answers as a whole class
- 5) Teacher reads passage and students highlight new vocabulary
- 6) Teacher reviews vocabulary
- 7) Students read passage to each other in pairs *Note: Classroom Routine 2: Reading for Fluency Strategies are used in this activity.*

Activity 2: Chart Reading (Unit 1.4 Handout 2)

Time: 20 minutes

- 1) Distribute [Unit 1.4: Handout 2](#) to students.
- 2) Discuss the fact that the main idea can be found in reading passages and in charts/graphs
- 3) Ask students to examine the graph to answer the questions
- 4) Circulate class while they are looking at chart to make sure they understand the information presented
- 5) Review answers as a whole class – note: conclusions may vary – ask students with different conclusions to discuss theirs with the class. You may have to help students with conclusions as it can be difficult if they have never written one before. Remind them that on a GED or TABE reading test, they may have to find conclusions or inferences. It is a skill they will use on many tests.

Break: 10 minutes

Activity 3: Scientific Method (Unit 1.4 Handout 3)

Time: 45 minutes

- 1) Hand out [Unit 1.4: Handout 3](#) to students.
- 2) Explain to class they do not have to be a scientist to take the GED Science test, but they do have to know some parts of the Scientific Method. There may be a few questions on the test where students will read about a science experiment and then will have to understand or point out certain parts of the experiment. This reading is an introduction to the Scientific Method. They will read more on it in future lessons.
- 3) Review answers as a whole class
- 4) Teacher reads passage and students highlight new vocabulary
- 5) teacher reviews vocabulary
- 6) Students read passage to each other in pairs *Note: Classroom routine notes are used in this*

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activity.

Wrap-Up: Summarize

Time: 5 minutes

Have students turn to a partner (or write in their journals) about what they have learned today about the scientific method. If the students seem to be a bit confused about it, ask them to write one question or wondering they have from the reading passage. *Note: Can use summarizing notes from classroom routines.*

Extra Work/Homework: Review Greenhouse Effect (Unit 1.4 Handout 4)

Time: 30 minutes outside of class

Students can read and answer questions from the **6-way Paragraphs** (Advanced Level) reading #93 (p. 186 – 187) "Forever Warm". This is an excellent opportunity for students to review previous material in a different format. It is also a great way to get new students acquainted with the other lessons.

Differentiated Instruction/ELL Accommodation Suggestions	Activity
If some student groups finish early, they can use the time to practice summarizing a multi-paragraph reading.	Unit 1.4 Handout 1
Teachers should be aware that at times, pollution and recycling can be controversial topics. There are some suggested guidelines for instructors in <u>Routine 5: Handling Controversial Topics</u> which you may find helpful.	
There may be a lot of new vocabulary with Unit 1.4 Handout 3 (Taking a Good Look at the World). You may need to support ELLs with vocabulary. It is also a chance for you to remind students of previous lessons where they learned of Greek roots (-ology).	Unit 1.4 Handout 3

Online Resources: City of Minneapolis Solid Waste & Recycling:

<http://www.ci.minneapolis.mn.us/solid-waste/about/WCMS1P-116556>

Suggested Teacher Readings:

- Keep American Beautiful:

http://www.kab.org/site/PageServer?pagename=about_home

- GED Testing Service – GED Science Item Sample (to get an idea of what the test may be like)

<http://www.gedtestingservice.com/itemsamplerscience/>

Unit 1.4 Handout 1

Name: _____

Date: _____

Recycling Matters

Some people believe that throwing away one thing in the garbage that could have been recycled does not matter. This is not true. If many people think this way, it could add up to a lot of garbage. That is why the landfill is filling up so quickly. This is harmful to the environment because land is being used for this purpose instead of providing homes for people, plants and animals. One way to stop the landfill from filling up as quickly is to recycle. When we recycle, the items are diverted from the landfill and are made into something new and useful instead. Therefore, recycling saves landfill space.

In addition, recycling is important because it helps to save renewable and non-renewable natural resources. For example, aluminum is made from a non-renewable resource called bauxite ore. Bauxite ore is said to be non-renewable because once the world's supply of this material is completely used up, there is no way to replenish it. Therefore, if we use up the all of the bauxite ore by making aluminum, we will be without this material forever. However, through recycling we conserve this natural resource by using existing aluminum products, rather than bauxite ore, to make more aluminum products.

Another benefit of recycling is the conservation of energy. When products are manufactured from recycled material, it takes less energy to produce them. For instance, the energy saved by recycling one aluminum can is enough to run a television for three hours.

Recycling also reduces pollution. Take the example of aluminum products. The bauxite ore used to make the aluminum products is most prevalent in Australia and is deep down in the earth. A great deal of pollution is created and a lot of energy is used when bauxite ore is mined. Recycling eliminates the need to mine for the bauxite ore; therefore, energy is saved and pollution is reduced.

Recycling helps the environment in many ways. However, we can only see the benefits when people take an active part in recycling. So, remember to recycle wherever you are – at home, at school or at play.

1. The main idea is stated in the passage. Underline the main idea in the passage and paraphrase it in the space provided. If finished early, write a 3-5 sentence summary on the back.

2. Underline the details in the passage that support the main idea.

From: <http://www.swa.org>

Unit 1.4 Handout 1

Name: _____

Date: _____

Recycling Matters – ANSWER KEY

Some people believe that throwing away one thing in the garbage that could have been recycled does not matter. This is not true. If many people think this way, it could add up to a lot of garbage. That is why the landfill is filling up so quickly. This is harmful to the environment because land is being used for this purpose instead of providing homes for people, plants and animals. One way to stop the landfill from filling up as quickly is to recycle. When we recycle, the items are diverted from the landfill and are made into something new and useful instead. Therefore, recycling saves landfill space.

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1. The main idea is stated in the passage. Underline the main idea in the passage and paraphrase it in the space provided.

When we recycle, the items are diverted from the landfill and are made into something new and useful instead. Therefore, recycling saves landfill space.

PARAPHRASES MAY VARY: A possible answer is: Recycling is a way to keep items from entering and taking up space in a landfill by turning them into useful products.

2. Underline the details in the passage that support the main idea.

See underlined details above.

Unit 1.4 Handout 2 – page 1 of 2

City of Minneapolis Department of Public Works

Division of Solid Waste & Recycling

City-wide residential recycling collection began in November 1983. One-sort residential recycling was rolled out in November 2012 and will be completed in June 2014.

2011 & 2012 Minneapolis Solid Waste & Recycling Statistics

<i>Recycling Material</i>	<i>2012 Tons</i>	<i>2012 Rate %</i>	<i>2011 Tons</i>	<i>2011 Rate%</i>
Newspaper	6,066.95	5.28	6,700.83	5.57
Cans-Alum	225.99	.20	229.22	0.19
Cans-Tin	527.31	.46	534.85	0.44
Glass	5,918.99	5.16	5,838.81	4.86
Plastic	1,372.83	1.20	1,250.26	1.04
Corrugated	920.55	.80	989.79	0.82
Magazines	1,211.70	1.06	1,220.37	1.01
Phone Books	10.07	.01	133.63	0.11
Mixed Paper	1,379.83	1.20	1,128.43	0.94
Mattresses	669.35	.061	495.47	0.41
Appliances & Scrap Metals	733.25	.64	1,161.33	0.97
One Sort (one garbage can for all recyclables)	860.28	.75	-	-
Total Recycling	19,927.10	17.36	19,682.99	16.36

Use the information in the chart above to answer questions on the next page.

Fun Fact: In just six weeks, the first 31,500 one-sort customers increased their recycling by 63% recycling 396 tons more than the previous year with multi-sort system. An additional 860.3 tons of one-sort recyclables were collected in 2012.

From: www.ci.minneapolis.mn.us/solid-waste/about/stats/index.htm

Unit 1.4 Handout 2 – page 2 of 2

Use the information in the chart above to answer questions below. (Write your answers in complete sentences using the evidence provided in the chart.)

1. Which year had the greater amount of glass recycling?
2. In 2011, which material had the largest percentage of total recycling tonnage?
3. In 2012 which material had the smallest percentage of recycling tonnage?
4. Charts and graphs are similar to multi-paragraph passages and also have a main idea. What is the main idea of the chart on the previous page?
5. To make a conclusion, use your background knowledge about the subject (recycling) plus the information presented in the chart or reading. What is one conclusion you can make from the evidence presented in the chart about changes in newspaper and magazine recycling from 2011 to 2012?

Unit 1.4 Handout 2

TEACHER ANSWER KEY (Answers may vary)

Use the information in the chart above to answer questions below. (Write your answers in complete sentences using the evidence provided in the chart.)

1. Which year had the greater amount of glass recycling?

2012 had more glass recycling, 5,918.99 tons, than 2011 5,838.81 tons.

2. In 2011, which material had the largest percentage of total recycling tonnage?

According to the chart, newspaper had the largest percentage of total recycling in 2011 with 5.57%.

3. In 2012 which material had the smallest percentage of recycling tonnage?

According to the chart, phone books had the largest percentage of total recycling in 2012 with .01%.

4. Charts and graphs are similar to multi-paragraph passages and also have a main idea. What is the main idea of the chart on the previous page?

Possible answer: The main idea of the chart is to show the amount of recycling materials collected by the City of Minneapolis in 2011 and 2012

5. To make a conclusion, use your background knowledge about the subject (recycling) plus the information presented in the chart or reading. What is one conclusion you can make from the evidence presented in the chart about changes in newspaper, phone book and magazine recycling from 2011 to 2012?

Possible answer: According to the chart, the amount of newspaper, phone book, and magazine recycling decreased from 2011 to 2012 while most all other recycling materials increased. A possible conclusion from the evidence presented is that with the wide-spread use of the computers, the Internet, and smart phones, city residents no longer read newspapers, magazines or use phone books in a paper form and so they have less to recycle.

Unit 1.4: Handout 4 (Homework)**TEACHER ANSWER KEY**

1. a. broad idea
 b. main idea
 c. narrow idea
2. d
3. c
4. a
5. b
6. b