



Learning Project 2 Reading Charts and Diagrams

Inquiry Activity 2-1: Reading Charts

(Note: Italicized portions should be directed to the students.)

1. Identifying the Problem (Items 15 & 24 Science PA)

These two questions require gathering information from a chart to find the correct answers.

Read the questions first, then look at the charts.

15. Density of Some Gases at Standard Temperature and Pressure

Gas	Density (grams per liter)
Air (dry)	1.2929
Ammonia	0.771
Chlorine	3.214
Helium	0.1785
Oxygen	1.429

Which gas listed above is the LEAST dense?

- (1) air (dry)
- (2) ammonia
- (3) chlorine
- (4) helium
- (5) oxygen

24. In order to cut her grass, Georgette recently purchased a string trimmer with the following instructions.

Mixing Instructions for 2-Cycle Engine Oil

Mix 2-cycle oil with unleaded gasoline in a 24:1 ratio of gasoline (gallons) to oil (ounces). Use the mixing instructions from an 8-ounce container of 2-cycle engine oil as listed in the following table.					
Ratio	16:1	20:1	24:1	32:1	40:1
Gas (Gal.)	1.0	1.25	1.5	2.0	2.5
Oil (Oz.)	8.0	8.0	8.0	8.0	8.0



Georgette needs to fill the trimmer’s engine properly before she uses it.

Which amount of gasoline should she mix with the contents of the oil container?

- (1) 1.0 gallon
- (2) 1.25 gallons
- (3) 1.5 gallons
- (4) 2.0 gallons
- (5) 2.5 gallons

Where have you seen charts like this before?

What words or symbols might be important to understand in order to answer the questions, and what are they telling you?

In question 15, to understand the content, learners should understand density, grams, liter, and the names of the gases.



To answer the question properly, they simply need to compare the numbers.

For question 24, they will need to understand the symbol for ratios. A discussion of what ratios are and how they correlate with proportions (Learning Project 6 in the Math volume; see part 5, Extension) might be helpful. However, learners do not need to understand the concept in order to answer the question correctly. They need only match numbers.

Is there anything on the charts you do not understand?

2. Becoming Familiar with the Problem

Ask yourself questions like the following, taking note of those that were helpful so you can use them again.

Re-read each question. What are you being asked to find out?

From reading the title, what do you already know about the topic of each chart?

Read the headings on the columns. What information do they give?

What do you already know about the information on each chart from your previous reading or experiences?

The chemicals listed are all ones that most people have some experience within their lives, although most of us experience ammonia and chlorine in forms other than gas. Helium balloons are available at most florists, grocery stores, and crafts stores.

The idea of mixing things together in specific proportion (2 parts vinegar to 1 part oil) is familiar to most who have cooked. Mixing gas and oil for small engines is commonplace knowledge for any who have mowed lawns, run chain saws, or have used other machinery with two-stroke engines.

Do the topics attract your attention?

How are the charts organized?

How does the organization help you understand what is on the chart?

3. Planning, Assigning, and Performing Tasks

Planning: *You may decide to work in a group to do this Activity.*

Assigning: *Decide who will read the information or who will lead the discussion of what is on the chart and how each chart is organized.*



Doing the Work: As you read the charts, consider these strategies:

What information does the chart provide that can answer the questions in the problem?

Find your answer to the questions.

The correct answers are directly shown on the charts. For question 15, the answer is (4) Helium is the least dense gas.

For question 24, the answer is (3) 1.5 gallons.

Are your answers completely covered by the information in the charts?

The charts give more information than the questions require. Beyond finding the correct spot on each chart to read off the answer, nothing else is required.



It might be worth mentioning that for both questions, the answers are given in the same order as the material is presented on the chart.

Be able to defend your answer and the way you found it.

4. Sharing with Others

Telling other people what you know helps you to understand the material better. So take this opportunity not only to share the knowledge, but also to learn it more completely.

Whole class: Share with the whole class the steps you used in order to answer the questions. Take notes on any different ways of answering the questions the other groups give.

5. Reflecting, Extending, and Evaluating

Reflecting: Think about what you have learned.

Thinking about what you have learned and experienced is part of the learning process. When the focus is only on the answer, you don't get much time to think about what was learned.

1. *What have you learned about the uses of charts in this Activity?*
2. *How does the layout or organization of the charts help you understand their purposes?*
3. *How can charts be useful in making technical or unusual information clear to readers?*
4. *How important is it to understand all the material on the charts?*

Extending: Extend what you learned to new situations.

In extending, you are being asked to transfer the information presented in the Practice Test question to other information or situations.

1. *Use the information presented on the chart in question 24 to make a proportion problem for a math class. Use Math Learning Project 6-1 as a model.*
2. *Make up a different question about one of these charts that could be used on the GED. Exchange it with others in your group to answer.*
3. *Take the information given in each of these charts and write it in a paragraph. Which is easier to understand—your paragraph, or the charts? Why?*

One of the reasons visuals appear with increasing frequency in today's media is that they present information accessibly.



Evaluating: Assess what you learned and how you learned it.

In this last step, you get a chance to review the content of what you learned and the methods used to learn. These questions have no right or wrong answers; it is your chance to look more closely at your learning style and the opportunity to state how you benefited or didn't benefit from the content and/or the methods presented in this IA.

1. *What parts of the activity worked best for you? Explain.*
2. *What parts did not work well for you? Explain.*
3. *What thinking strategy will you use when taking the GED test? Why?*
4. *How does following this 5-step format make you feel?*