

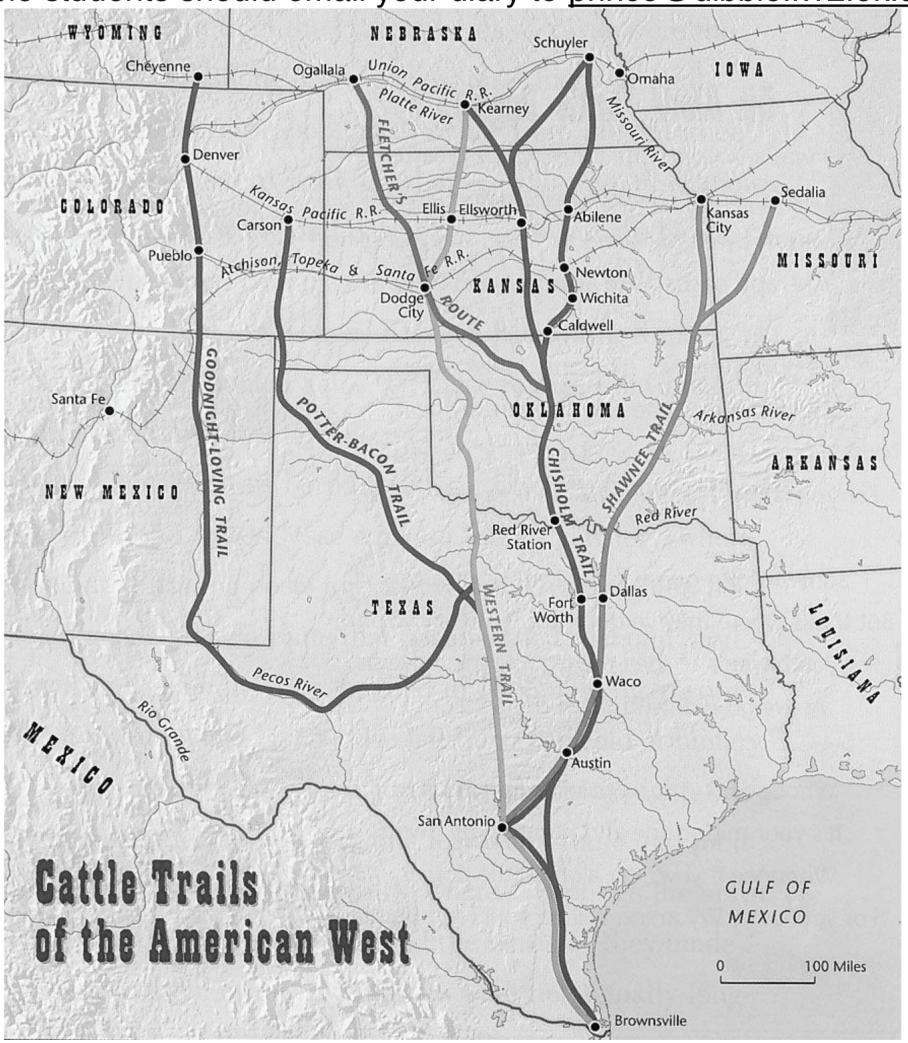


SCHOOLHOUSE NEWS

The Purcell Register

High School

** Dibble students should email your diary to prince@dibble.k12.ok.us



SCIENCE

Vocab and Resources

Matter is anything that has mass and occupies space. Matter can exist in three forms or phases: solids, liquids, or gases.

A **substance** is defined as matter which is homogeneous and of which all parts are alike. Substances are either elements or compounds.

Elements are pure substances which cannot be decomposed into simpler substances by chemical means. Some familiar elements are oxygen, gold, sulfur, and iron.

Compounds are pure substances that are composed of two or more elements. Substances such as water, salt, and sugar are simple examples of compounds. On the other hand, wood or a piece of marble are not homogeneous and therefore not pure substances or compounds. They are called mixtures.

Mixtures are defined as matter which consists of two or more substances mixed together. A mixture can be either homogeneous or heterogeneous. In a heterogeneous mixture several difference components can be detected with the unaided eye. Marble is not homogeneous, you can see different colored components. However, salt dissolved in water produces a perfectly homogeneous mixture.

A **physical property** of matter is one that can be observed without changing its composition. Gold is a shiny yellow metal. Lead has a high density. Observations of these characteristics do not change the composition.

A **chemical property** is one which is observed when matter undergoes a transformation that results in a change of composition. Gasoline will burn in air to form products which are very different from the original material. Iron will rust in moist air to form a compound called iron oxide. The fact that gasoline burns and iron rusts are therefore chemical properties.

A **physical change** is a change in the form of matter without changing its composition. Examples of such changes are phase changes such as melting, boiling, etc.

A **chemical change** is one that leads to a change in the composition of the matter involved. The burning of wood leads to products very different than the starting material.

Physical changes are quite often reversible. Ice can be melted to form liquid water; however, water can be readily reconverted to ice. Chemical changes are usually irreversible.

into the original material. Even though matter can undergo changes it is important to realize that in ordinary chemical reactions matter cannot be created or destroyed. We say that matter is conserved. This is one of the fundamental conservation laws.

- Classify the following as pure substances or as mixtures:
 air gasoline grain alcohol
 water sugar gold
 mercury oxygen salt water
- Classify the following as heterogeneous or as homogeneous:
 sand & salt mixture hydrogen iron
 salt water unfiltered air iron with rust
 pure water an apple nitric acid
 salad granite wood
- Classify the following as an element, a compound, a solution, or a heterogeneous mixture:
 aluminum raisin bread carbon dioxide
 water sugar and water sulfur
 sulfuric acid mercury an orange
 water & instant coffee a pencil carbon particles & sugar
 nitrogen air gasoline

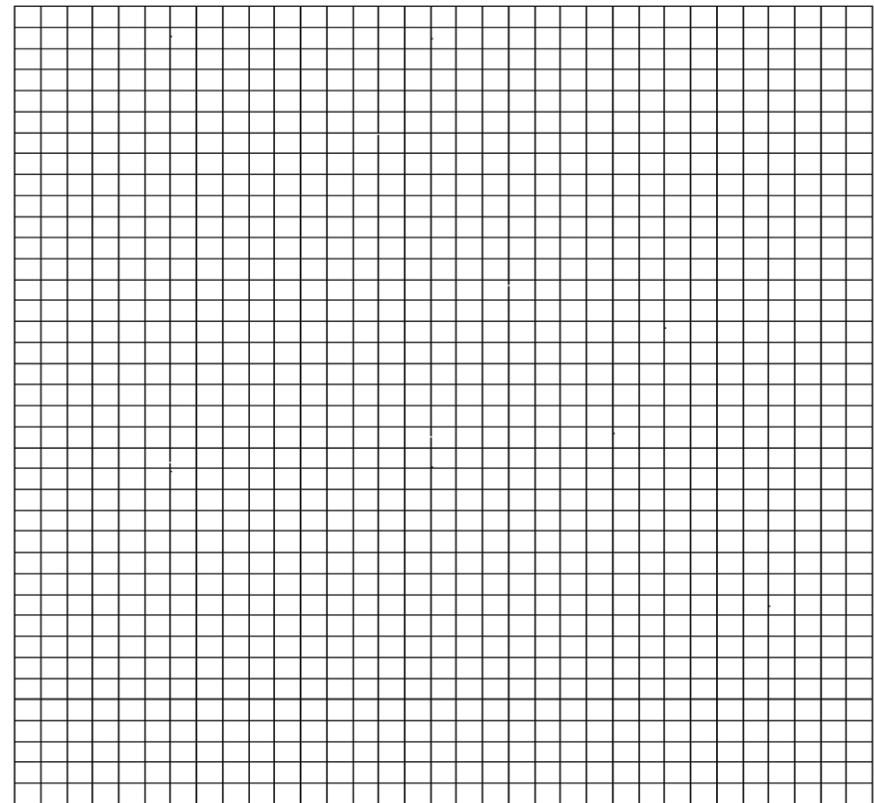
Graphing Practice

Directions: Read the following material, examine and line graph the data, then answer the questions that follow.

Ethylene is a plant hormone that causes fruit to mature. The data below concerns the amount of time it takes for fruit to mature from the time of its first application. Create a **Line graph** (not a bar graph) using the data and answer the questions that follow. Be sure to create a key and label both axes. (Use different colors for each type of apple)

Amount of ethylene in ml/m ²	Winesap Apples Days to Maturity	Golden Apples Days to Maturity	Gala Apples Days to Maturity
10	14	14	15
15	12	12	14
20	10	9	12
25	8	7	10
30	8	7	8
	8	6	7

Graph Title: _____



Data Evaluation

- What is the dependent variable? _____
- Of the three groups of apples which one(s) seem(s) to have room for shortening the maturation time using ethylene? _____. Explain your answer. _____
- What is the total mean maturation time of the three groups of apples? _____
- What is the mode of the Golden Apples? _____
- What dosage of ethylene seems to produce the best results for each of the three groups of apples?
Winesap _____ Golden Apples _____ Gala Apples _____
- If you were going to ship apples to HEB, and expect them to have a shelf life of one week, how much ethylene would you use for each of the three types of apples mentioned above? Apples remain fresh two weeks after maturation.
Winesap _____ Golden Apples _____ Gala Apples _____

Resources

Mean: is the average of all the numbers. Add up the numbers then divide by how many numbers you used.

Mode: is the number that is repeated more often.

Example Data Set 13, 18, 13, 14, 13, 16, 14, 21, 13

Mean: $(13+18+13+14+13+16+14+21+13) / 9 = 15$

Mean = 15

Mode = 13 The number 13 occurred more times than any other number in the data set.