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Government

Science

Math

Geography

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A on and M tter

my Vocabulary

B

- beam *n.*** *Electronics.* a narrow stream of electrons, as that emitted from the electron gun of a cathode ray tube.
- binary *adj.*** *Chemistry.* noting a compound containing only two elements or groups, as sodium chloride, methyl bromide, or methyl hydroxide.
- bind *v.*** to fasten or secure with a band or bond.
- boundary *n.*** something that indicates bounds or limits; a limiting or bounding line.

C

chemical bond *n., v.*

Any of several forces or mechanisms, especially the ionic bond, covalent bond, and metallic bond, by which atoms or ions are bound in a molecule or crystal.

- carbon *n.*** *Chemistry.* a widely distributed element that forms organic compounds in combination with hydrogen, oxygen, etc., and that occurs in a pure state as diamond and graphite, and in an impure state as charcoal. *Symbol:* C; *atomic weight:* 12.011; *atomic number:* 6; *specific gravity:* (of diamond) 3.51 at 20°C; (of graphite) 2.26 at 20°C.

my Law

**CONSTITUTION
OF THE
STATE OF FLORIDA
ADOPTED IN 1968 AND SUBSEQUENTLY AMENDED**

We the people of the State of Florida, being grateful to Almighty God for a
 constitutionally based system of government, a united method
 of government, maintaining the principle of equal civil rights to all
 and a desire to establish a constitution

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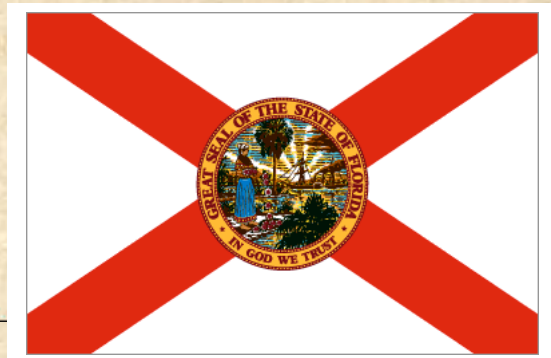
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my Law

CONSTITUTION
THE
STATE OF FLORIDA
AS REVISED AND SUBSEQUENTLY AMENDED

ARTICLE I
DECLARATION OF RIGHTS

1.	Every person has the right to a fair trial by an impartial jury of his peers.
2.	Every person has the right to a fair trial by an impartial jury of his peers.
3.	Every person has the right to a fair trial by an impartial jury of his peers.
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26.	Every person has the right to a fair trial by an impartial jury of his peers.



my Law

ARTICLE I

DECLARATION OF RIGHTS

Rights of accused and of victims

prosecutions the accused shall, upon demand, be informed of the nature of the accusation, and shall be furnished a copy of the charges and shall have the right to have compulsory process for witnesses to confront and examine witnesses to be heard in person, by oneself or both, and to have a speedy and public trial by impartial jury in the county where the crime was committed. If the county is not known, the indictment or information may be returned in two or more counties jointly and proof that the crime was committed in that area shall be sufficient; but before pleading the accused may elect in which of those counties the trial will take place. Venue for prosecution of crimes committed beyond the boundaries of the state shall be fixed by law.

(b) Victims of crime or their lawful representatives including the next of kin of homicide victims are entitled to the right to be informed, to be present, and to be heard at all crucial stages of criminal proceedings, to the extent that such rights do not interfere with the constitutional rights of the accused.

and 1988; Am. proposed by Constitution 3, filed with the Secretary of State May 5,

SECTION 17. Excessive punishments.--Excessive fines, cruel and unusual punishment, attainder, forfeiture of estate, indefinite imprisonment, and unreasonable detention of witnesses are forbidden. The death penalty is an authorized punishment for capital crimes designated by the legislature. The prohibition against cruel and unusual punishment, and the prohibition against cruel and unusual punishment, shall be construed in conformity with decisions of the United States Supreme Court which prohibit such punishment against cruel and unusual punishment provided in the Eighth Amendment to the United States Constitution. Any method of execution shall be allowed, unless prohibited by the United States Constitution. Methods of execution may be designated by the legislature, and a change in any method of execution may be applied retroactively. Shall be construed in conformity with decisions of the United States Supreme Court, which interpret the prohibition against cruel and unusual punishment provided in the Eighth Amendment to the United States Constitution. Any method of execution shall be allowed, unless prohibited by the United States Constitution. Methods of execution may be designated by the legislature, and a change in any method of execution may be applied retroactively.

History.--Am. H.J.R. 3505, 1998; adopted 1998; Am. H.J.R. 951, 2001; adopted 2002

my Law

ARTICLE I

SECTION 18. Administrative penalties.--No administrative agency except the Department of Military Affairs in an appropriately ordered court-martial action as provided by law, shall impose a sentence of imprisonment, nor shall it impose any other penalty except as provided by law.

History.--Am. proposed by Constitution Revision Commission, Revision No. 13, 1998, filed with the Secretary of State May 5, 1998; adopted 1998.

SECTION 19. Costs.--No person charged with crime shall be compelled to pay costs before a judgment of conviction has become final.

SECTION 20. Treason.--Treason against the state shall consist only in levying war against it, adhering to its enemies, or giving them aid and comfort. No person shall be convicted of treason except on the testimony of two accomplices or on confession in open court.

SECTION 21. Access to courts.--The courts shall be open to every person for redress of any injury and justice shall be administered without a fee, denial or delay.

SECTION 22. Trial by jury.--The right of trial by jury shall be secure to all and remain inviolate. The qualifications and the number of jurors not fewer than six shall be fixed by law.

SECTION 23. Right of privacy.--Every natural person has the right to be let alone and free from governmental intrusion into the person's private life except as otherwise provided herein. This section shall not be construed to limit the public's right of access to public records and meetings as provided by law.

History.--Added, C.S. for H.J.R. 387, 1980; adopted 1980; Am. proposed by Constitution Revision Commission, Revision No. 13, 1998, filed with the Secretary of State May 5, 1998; adopted 1998.

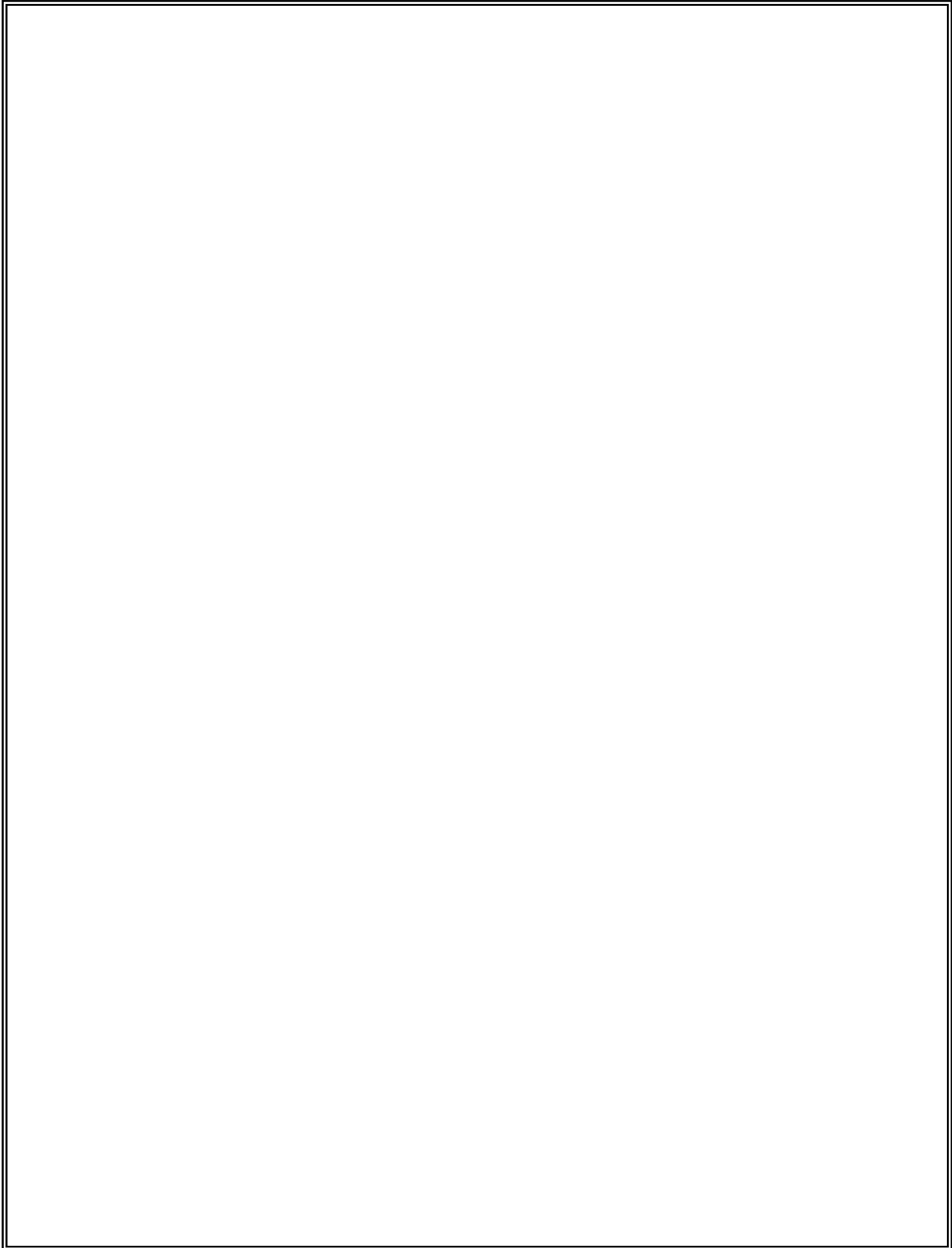
SECTION 24. Access to public records and meetings

(a) Every person has the right to inspect or copy any public record in connection with the official business of any public body officer, or state, or persons at the state level, except with respect to records pursuant to this section that are confidential by this Constitution specifically in the executive, legislative, and judicial branches of government and each department created thereunder, municipalities and districts, constitutional officer, board, or entity created pursuant to this Constitution.

C

chromosome *n.* any of several threadlike bodies, consisting of chromatin, that carry the genes in a linear order: the human species has 23 pairs, designated 1 to 22 in order of decreasing size and X and Y for the female and male sex chromosomes respectively

circuit *n.* *Electricity.* Also called **electric circuit.** the complete path of an electric current, including the generating apparatus, intervening resisto5 re □ n □Cs1 cs□□□



my Vocabulary

Atomic Number (Weight)

The quantity of matter contained in an atom of an element. It is expressed as a multiple of one-twelfth the mass of the carbon-12 atom, $1.99264648 \times 10^{-23}$ gram, which is assigned an atomic mass of 12 units. In this scale 1 atomic mass unit (amu) corresponds to $1.66053873 \times 10^{-24}$ gram.

The observed atomic mass is slightly less than the sum of the masses of the protons, neutrons, and electrons that make up the atom. The difference, called the mass defect, is accounted for during the combination of these particles by conversion into binding energy, according to an equation in which the energy (E) released equals the product of the mass (m) consumed and the square of the velocity of light in vacuum (c); thus, $E = mc^2$.

Oxidation State

In chemistry, the oxidation state is an indicator of the degree of oxidation of an atom in a chemical compound. The formal oxidation state is the *hypothetical* charge that an atom would have if all bonds to atoms of different elements were 100% ionic. Oxidation states are represented by Arabic numerals and can be positive, negative, or zero. Thus, H^+ would have an oxidation state of 1+.

The increase in oxidation state of an atom is known as an oxidation: a decrease in oxidation state is known as a reduction. Such reactions involve the transfer of electrons, a net gain in electrons being a reduction and a net loss of electrons being an oxidation.

Electron Configuration

In atomic physics and quantum chemistry, the **electron configuration** is the arrangement of electrons in an atom, molecule, or other physical structure (*eg*, a crystal).

my Periodic Table

The diagram illustrates the element Calcium (Ca) with the following properties and their corresponding values:

- Atomic Number:** 20
- Melting Point (°C):** 1484
- Atomic Weight:** 40.08
- Boiling Point (°C):** 839
- Symbol:** Ca
- Name:** Calcium
- Electronegativity:** 1.0
- Density:** 1.55
- Electron Configuration:** [Ar]4s²
- Oxidation State:** 2
- White Background:** Solid

Atomic Number	20
Melting Point °C	1484
Atomic Weight	40.08
Boiling Point °C	839
Symbol	Ca
Name	Calcium
Electronegativity	1.0
Density	1.55
Electron Configuration	[Ar]4s ²
Oxidation State	2
White Background	Solid

my Periodic Table

The diagram illustrates the element Indium (In) with the following properties and labels:

- Atomic Number:** 21
- Melting Point °C:** 1539
- Atomic Weight:** 44.956
- Boiling Point °C:** 2831
- Symbol:** In
- Name:** Indium
- Electronegativity:** 1.3
- Electron Configuration:** [Ar]3d4s²
- Density:** 2.99
- Oxidation State:** 3
- White Background:** Solid

Atomic Number	21
Melting Point °C	1539
Atomic Weight	44.956
Boiling Point °C	2831
Symbol	In
Name	Indium
Electronegativity	1.3
Electron Configuration	[Ar]3d4s ²
Density	2.99
Oxidation State	3
White Background	Solid

my Periodic Table

Atomic Number: 22

Boiling Point °C: 3289

Melting Point °C: 1670

Symbol: Ti

Atomic Weight: 47.88

Electronegativity: 1.6

Density: 4.54

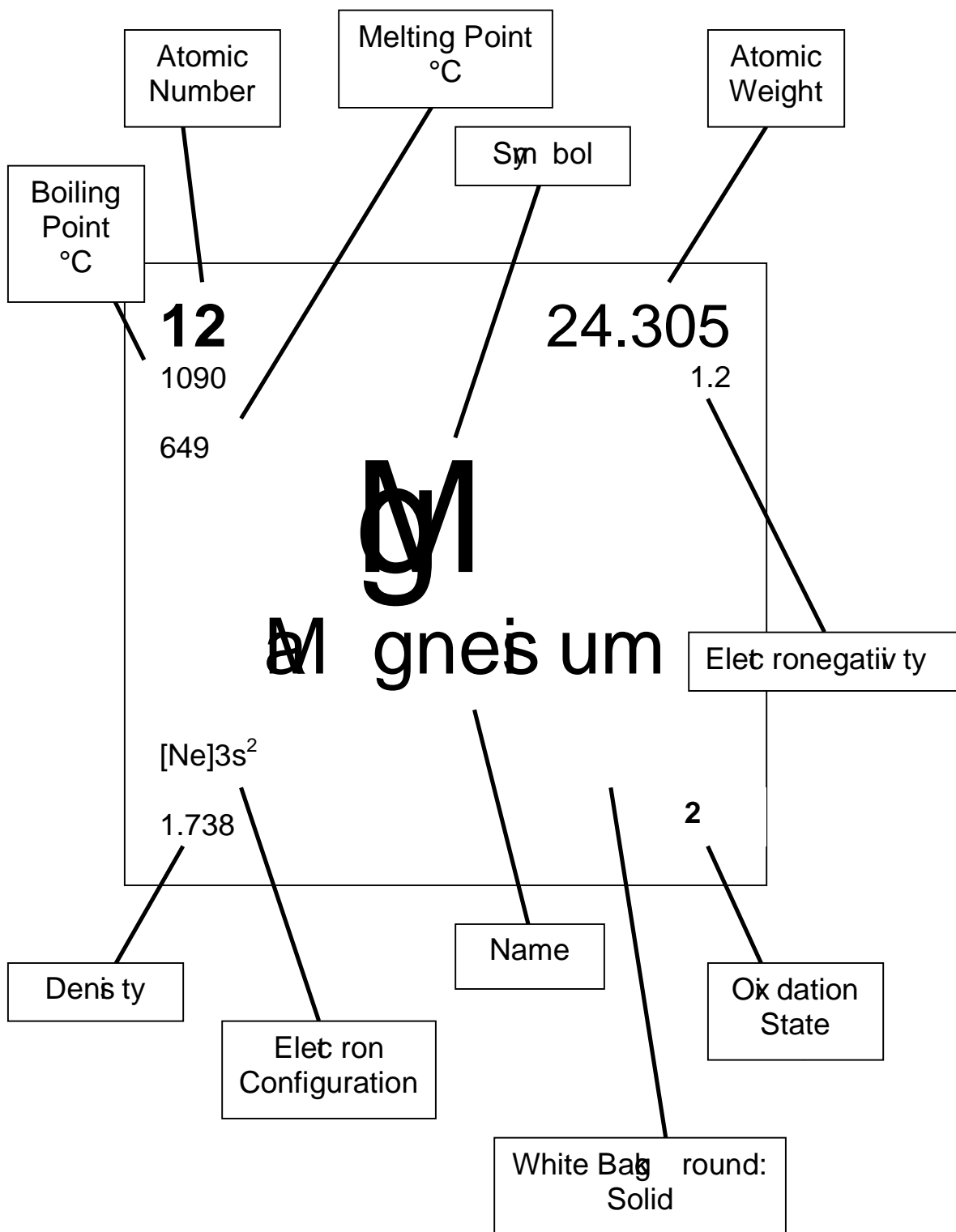
Electron Configuration: [Ar]3d²4s²

Name: Titanium

Oxidation State: 3,4

White Bag round: Solid

my Periodic Table



my Speech

10 BASIC PRINCIPLES OF GOOD SPEECH

1. **Good Speech is Socially Responsible.** Speech is one of our brief means of influencing others. Since we are beneficiaries of freedom of speech, we are also under an obligation to exercise it wisely. A socially responsible speaker is aware of his potential influence on attitudes, values, traditions, and institutions, and he reveals his awareness by his respect for facts, sound reasoning, and informed judgments. In short, speech is responsible to the degree that a speaker comprehends the social context of his remarks, strives valiantly to make intelligence prevail, and is accountable for the consequences of his discourse.

2. **Good Speech Reveals a Speaker with Good Personal Qualifications.** The speaker with strong personal qualifications is better equipped for his job, and is in a better position to command the respect of his audience. Listeners always size up a speaker, and their judgment of his personal qualifications influences their attitude toward what he says.

3. **Good Speech is Directed to Serve a Specific Purpose.** The specific purpose is simply the response that the speaker is seeking, the objective toward which he directs all his efforts. Without purpose, speech is random and aimless. And if the speaker without a purpose gets any response at all from his audience, it is not likely to be one that he values.

4. **Good Speech Deal with Worthwhile Subjects.** Good subjects for speech tap the best resources of the speaker and make demands on the best resources of the listener. We talk about countless things—experiences, events, problems, hopes, aspirations, joys, sorrows, and fears. Some of these subjects are so urgent that they cannot be denied. They *must* be talked about. Others are tempting simply because they seem to be worth exploring. And still others find their way into speech merely because we need something to talk about. The subjects people talk about affect the level and quality of speech. If you want to learn more about someone, find out what he chooses to say and hear.

5. **Good Speech is Based on the Best Available Materials.** No responsible speaker can afford to ignore the best materials at his command. Without constant attention to form will receive speech from the fate it deserves. And any speaker equipped with good ideas will find it much easier to discharge his other responsibilities gracefully and efficiently.

my Speech

10 BASIC PRINCIPLES OF GOOD SPEECH - continued

6. **Good Speech is Analytical.** *Speech always takes place in a context-a setting.* This setting is created by the subject, the audience, the occasion, and the speaker himself. *Analytical speech is speech that takes these factors into account.* Good speakers are sensitive to every element in the setting. They "size up the situation." If you make a poor analysis of your *subject*, you will deceive both yourself and your audience. If you make a poor analysis of your *audience*, your speech will miss its mark completely. If you make a poor analysis of the *occasion* you make stumble into improprieties of the words kind. And if you make a poor analysis of *yourself* in relation to all the other factors you may display attitudes that will block communication. Analysis is lauded when you outline your speech, and is brought to perfection as you deliver your speech.

7. **Good Speech is Based on Sound Method.** The method of the speaker is his plan of attack. It is dictated very largely by his purpose and by his analysis of the situation. There are four primary purposes of speech and four basic methods to serve these purposes-inquiry, reporting, advocacy and evaluation. Suffice it to say here that a good speaker knows *when* and *how* to use the appropriate method. It is a fair test of any speech to ask: Has the speaker used the method best designed to accomplish his purpose?

8. **Good Speech Claims the Attention and Interest of the Listener.** Communication stops when attention is lost. And attention will not persist for very long unless the audience's interest is engaged. The best speech is rewarding to both speaker and listener, for then the speaker is motivated to give his best and the audience is motivated to get the most out of what he says. This kind of motivated speech is realized only when the speaker analyzes and adapts to his audience, and when the listeners analyze and adapt to the speaker.

9. **Good Speech Makes Effective Use of Voice and Bodily Action.** Without voice and bodily action there can be no speech, for they carry the symbols out of which all speech is fashioned and the symbols to which listeners respond. The human voice and body are flexible instruments and enormous potentialities for sensitive communication far beyond the relatively simple demands of making oneself heard and seen. Good speakers have complete command of these instruments.

10. **Good Speech Uses Good Diction, Language, and Style.** The selection, arrangement, and pronunciation of words are dictated by generally accepted standards of ornamentation and good taste. Any speaker who violates these ornamentations does so at his own peril. A good speaker uses diction, language, and style to give his speech added precision, vigor, and beauty. Properly conceived, these are not ends in themselves but they are essential ingredients of effective communication.

Atoms and Matter

The business of science is not only to describe the workings of nature, but to do so in a precise way using mathematical models and employing explanations that involve the most basic constituents of the physical world. The scientific description of nature is the first step in doing science. From those descriptions scientists must arrive at general conclusions about the workings of nature. These general conclusions are expressed in a specialized, precise language called mathematics. However, science is not merely a list of equations. Proper science is a combination of precise descriptions and a synthetic summary statements written in mathematical language. The precise descriptions contain the concepts of science. Central to literacy in the sciences is a command of the concepts of science.

The scientist examines a world made up of physical objects. These objects are differently colored. They feel different when touched. They have peculiar smells. Each makes a different sound when one taps on them or they may produce sounds of their own. They all have various tastes. To make sense of the multiplicity of physical objects in our world, scientists first set out to classify objects by their commonalities. All objects that are hard to the touch are placed in the category of solids, all that are fluid are categorized as liquids, all that lack solidity and liquidity are categorized as gases. While this might seem to be a tidy way of classifying objects, scientists realized that some objects could be moved from one category to another merely by changing temperature. The basic example is water. At room temperature in temperate climates, water is usually a liquid. When the temperature drops below 0 °Celsius (32 °F) water becomes a solid, i.e. ice. When placed in a pot over an open flame, water at 100 °Celsius (212 °F) turns into gas steam. This extraordinary behavior cries out for an explanation.

Atoms and Matter

The atomic theory states that all matter is composed of small bits of matter called atoms. As we now know, 100 plus different atoms have been identified, of which, nearly three-quarters are naturally occurring. Some of the heavier atoms are only found in the by-products of scientific experiments. Atoms combine with like atoms to form elemental materials. Lead, gold, silver, copper, and aluminum are examples of elemental materials. Atoms also combine with other kinds of atoms to form compound materials. Salt, a combination of sodium and chlorine, is an example of a compound material. Some atoms combine more strongly with each other to form molecules. Two hydrogens and an oxygen combine to form a water molecule.

How atoms come together is an extremely important subject in science. The design and production of new materials is a central activity not only in learning why certain materials have certain properties (basic research) but also in the development of new technology (applied research).

The materials scientists of today are a little like the alchemists of yesterday: they take elements, combine them, and produce materials with desired properties. Some of these desired properties are of interest (presently) to researchers doing what is sometimes called pure research. The materials used in pure science may not have any exciting or obvious technological applications. However, in some cases this is only a temporary condition; some application may be found in the development of some future technology. The work of the pure researcher will have enabled the applied scientists to make something technologically useful of the material.

Other desired properties are instilled into a material for a specific application. For example, the materials science community has spent much effort to improve the magnetic media used to store digital information. In the last fifteen years, due to the efforts of applied materials scientists, the amount of information that we can store on a typical hard drive has gone from being

Atoms and Matter

measured in megabytes to gigabytes - a thousand fold increase in storage capacity

Atoms are quite literally the building blocks of matter. The more we learn about how atoms go together and how they work together to produce materials with special properties the better equipped we will be to address the needs and problems of tomorrow's technologies

myiterav.com

G.Ernest Jones

The Carbon Footprint

A carbon footprint is a representation of the effect human activities have on the climate in terms of the total amount of greenhouse gases produced (measured in units of carbon dioxide). So, it is a measure of the impact we make individually on the earth by the choices we make regarding our lifestyles. Many activities generate carbon emissions, which contribute to accelerating global warming and climate change.

A total carbon footprint/emission quantification would include energy related emissions from human activities - that is, from heat, light, power and refrigeration and all transport related emissions from cars, freight and distribution, etc.

By measuring the carbon footprint through such tools as carbon calculators, we can get a better sense of what the individual impact is and which parts of our lifestyle deserve the greatest attention.

Subprime

Subprime Lenders Defined

A sub-prime lender is one who lends to borrowers who do not qualify for loans from mainstream lenders. Some are independent, but increasingly they are affiliates of mainstream lenders operating under different names.

Sub-prime lenders seldom if ever identify themselves as such. The only clear giveaway is their prices, which are uniformly higher than those quoted by mainstream lenders. You do want to avoid them if you can qualify for mainstream financing, and I'll indicate how shortly.

There are lenders who offer both prime and sub-prime loans, and one of them is referred to below. For borrowers who aren't sure where they stand, dealing with a lender who offers both has a distinct advantage. They will try to qualify you for prime and only if that fails will they drop you to subprime. Lenders who are strictly subprime might refer a prime borrower to an affiliated prime lender, but their financial interest dictates otherwise.

Subprime Borrowers Defined

A subprime borrower is one who cannot qualify for prime financing terms but can qualify for subprime financing terms. The failure to qualify for prime financing is due primarily to low credit scores. A very low score will disqualify. A middling score might or might not, depending mainly on the down payment, the ratio of total expense (including debt payments) to income, and ability to document income and assets.

Some other factors can also enter the equation, including purpose of loan and property type. For example, a borrower who is weak on some but not all of the factors indicated in the paragraph above might squeak by if purchasing a 1-family home as a primary residence. But the same borrower purchasing a 4-family home as an investment might not make it.

Subprime

Subprime Lending Terms

Sub-prime lenders base their rates and fees on the same factors as prime lenders. For example, rates are higher the lower the credit score and the smaller the down-payment. However, the entire structure of rates and fees is higher at sub-prime lenders to cover the greater risk and higher costs of sub-prime lending.

A higher percentage of sub-prime than of prime loans go into default. Sub-prime lending costs are also higher because more applications are rejected and marketing costs are higher.

Among subprime loans that don't default, a higher percentage prepay early. Prepayment penalty clauses are often mandatory, and a high percentage of subprime loans have them. On the other hand, escrow of taxes and insurance, which is required in the prime market unless the borrower pays for a waiver, is often not required in the subprime market.

The 2/28 ARM

A very common mortgage in the subprime market, which I have never seen outside of that market, is the 2/28 ARM. This is an adjustable rate mortgage on which the rate is fixed for 2 years, and then reset to equal the value of a rate index at that time, plus a margin. Because the margins are high, the rate on most 2/28s will often rise sharply at the 2-year mark, even if market rates do not change during the period.

For example, the rate is 8% for 2 years but the index is currently 4% and the margin is 6%. If the index remains at 4% after 2 years, the loan rate will jump to 10%.

Some borrowers with poor credit scores take a 2/28 at a high rate and plan to rebuild their credit during the 2-year period. Their plan is to refinance at a better rate at that time. The major threat to such a plan is a prepayment penalty that runs past two years, which some do; and a lender who fails to report their payment history to the credit reporting agencies. Borrowers should be on their guard against both.