

**Easy** | **Comfortable** | **Difficult**

[too boring] | [just right] | [too hard]  
[routine]

| <b>Foundation</b>               | Comfort Zone | <b>Push</b>     |
|---------------------------------|--------------|-----------------|
| Re-set Paradigm                 |              | Challenge       |
| Establish <u>Common</u> Threads |              | Show you CAN    |
| Grounding                       |              | Implication     |
| Shift Perspective               |              | Grow            |
| Requirements Vetting            |              | Problem Solving |

**DRAW → Do the WORK → INSTRUCT**

**Visual Mapping → Learn within Context →  
Speak with Confidence**



# **Basic Music Structure**

## **#1 Rule Safety First**

**Beat**

**Length of Resonance (1/8<sup>th</sup>, Quarter, Half, Whole)**

**Melody – stringing notes together**

**Q&A**

**Motif**

**Harmony – stacking notes**

**Rhythm/Pulse**

# Basic Painting Concepts

## #1 Rule Safety First

### “Realism”

Getting an accurate interpretation of the scene

May be “interpretive” (Cubism, Melting Clocks)

Uses technique to capture image

### “Abstract”

Focus is on technique itself

Uses technique to “abstract out” (verb from Math) a  
concept or feeling – a “mood” {Pollock}

### Media:

Oil, Acrylic

Chalk, Graphite

Mixed Media

Building up

Wood, Glass, Beads

“Clear”/transparent

# **Basic Cooking Recipe**

## **#1 Rule Safety First**

**Following Directions/Instructions**

**Understanding Requirements**

**Preparation**

**Gathering Ingredients (may require shopping)**

**Utensils, Pots, Pans**

**Timing**

**Temperature**

**Procedures**

**Mixing**

**Adding Liquid, or Oil, or Egg**

**Baking / Frying / Grilling / Pressure Cooking**

**Getting the food out in proper stages at proper temps**

# Basic Financial Planning

CITE: <https://www.okcareertech.org/educators/cimc/free-samples/finance-cluster/pdf-files/financialliteracystudent.pdf>

## ***List the basic steps in a financial plan.***

A financial plan is a broad strategy for handling your finances. It should include both short-term and long-term goals. A financial plan helps you make the most of your money, regardless of your economic circumstances.

## ***Establish your financial goals.***

- Decide what you want your money to do for you.
- Determine what style of living you wish to achieve.
- List savings objectives.

## ***Estimate and total your income.***

- Determine how much money you receive from all sources for the plan period—earnings, gifts, bonuses, interest on savings, and allowance.

## ***Estimate and total your expenses.***

- List all your expenses, separating them into **fixed** and **variable** expenses.
- Add up these expenses to determine how much money you spend during each plan period.

## ***Analyze your current income and spending.***

- Carefully examine the amounts you estimated for both income and expenses. Overestimating income and underestimating expenses is very easy to do and can cause big problems for your budget.
- Subtract your expenses from your income for each plan period. If you come out even or need extra money, consider ways to increase your income or cut your expenses. If you have extra money, decide how you want to apply it toward your savings goal.

***Prepare a trial financial plan.***

- A written plan listing your goals, your income, and your expenses reduces the temptation to overspend or spend carelessly.
- Put your financial plan into writing.
- Revise your plan and update it on a regular basis.

***Put your plan into action and keep organized records.***

- Keep track of your spending and savings.

***Evaluate your financial plan periodically.***

- Whenever your income, expenses, or goals change significantly, review your plan to see if you need to make any changes.
- Significant events all have an impact on your financial plan. These may include graduating, going to college, starting a new job, moving, marrying, having children, changing jobs, etc.

# **Basic Business Plan**

## **#1 Rule Safety First**

**In Order!:**

**Vision – Grand Purpose of “Impact”;** what is my idea, and how will it affect the market

**Mission – My intention to push forward my vision**

**Executive Summary – Summary of Plan, Marketing, Return on Investment**

**Plan – High Level of Steps to take (Strategic)**

**Implementation – Detailed Level describing each Step of the Plan (Tactical)**

**Marketing Summary – Summary of Market Research**

**Financial Summary –**

**Income: Statements of financial claim, price per item, number of customers expected on a daily basis, average sale per customer**

**Expenses: Disclosing expected payments**

**“Cost” is an Economic (Choice) term; “Expense” is a Financial (Payment) term; “Revenue” is a Financial (Income Stream) term**



# Practice with Definitive Purpose (Intention)

## #1 Rule Safety First

Habit – a repeated action that:

- a) reinforces itself; and
- b) leads to a compounded effect

Routine – a repeated action that shows no improvement or change

Rut – a Routine that burrows itself into an undesired (or non-optimal) outcome

Practice – repetition of an action with the intent to improve results

Practice with Definitive Purpose – focusing on intent, not allowing for routine or “mechanical” behavior (automatic action without thinking) to set in

Compound Effect (see “Hardy”) – Habits which lead toward improvement via practicing with definitive purpose, or, which lead toward a rut... this is an “exponential force”

## How to make a vision board in 5 steps:

**Step 1:** Go through your magazines and tear the images from them. No gluing yet! Just let yourself have lots of fun looking through magazines and pulling out pictures or words or headlines that strike your fancy. Have fun with it. Make a big pile of images and phrases and words.

**Step 2:** Go through the images and begin to lay your favorites on the board. Eliminate any images that no longer feel right. This step is where your intuition comes in. As you lay the pictures on the board, you'll get a sense how the board should be laid out. For instance, you might assign a theme to each corner of the board. Health, Job, Spirituality, Relationships, for instance. Or it may just be that the images want to go all over the place. Or you might want to fold the board into a book that tells a story. At my retreats, I've seen women come up with wildly creative ways to present a vision board.

**Step 3:** Glue everything onto the board. Add writing if you want. You can paint on it, or write words with markers.

**Step 4:** (optional, but powerful) Leave space in the very center of the vision board for a fantastic photo of yourself where you look radiant and happy. Paste yourself in the center of your board.

**Step 5:** Hang your vision board in a place where you will see it often.

CITE: <http://christinekane.com/how-to-make-a-vision-board/>

Excerpt retained for educational purposes only

# Gratification: ROI v ROE

## #1 Rule Safety First

### Gratification Types:

- Impulsive (Immediate)
- and Delayed (Invested)

**Gratification** gives us “rewards”: financial, manifest (finished product), and emotional – “emotional” is tricky

**Immediate Gratification** “feels good” in the moment, but gives nothing back in terms of improvement, or product development

**Delayed Gratification** provides “no emotive support” in the moment – or even “feels like a struggle” – but gives high returns later down the road in terms of improvement, or manifestation, and continues to build upon itself (Compound Effect)

**ROE** – “what do I get out of my effort now?” (\$1000 loan to Apple in 1977 with immediate payments)

**ROI** – “what do I get out of my investment down the road, and how long until the investment provides the return?”... also, “what other benefits provided?” (think: \$1000 investment for Apple Computers Inc. stock purchase in 1977)

# Puzzling (Game Theory)

## #1 Rule Safety First

Puzzles – teach us how to break down problems and train us to “see” solutions

Puzzling steps:

a) “How do we eat an Elephant?”

- De-Construction (Engineering term: “Reverse-Engineering”)
- Work through each aspect/section (Construction term: “Cross-Section” or “Cut-Away”)
- When you get “stumped”, move on to next aspect
- Find solution(s) to that aspect
- Run through all aspects
- Return to aspects that were “stumped” and resolve
- Integrate aspects solutions into complete/fully realized solution (Business term: “Secret Sauce” – leads to tech and/or service advantages over competitors, as well as patents/licenses)

Sudoku: puzzle that teaches “constraint theory”

# Basic Essay Types

## #1 Rule Safety First

**Narrative Essay** achieves a certain purpose through telling a story.

**Descriptive Essay** tells about a certain topic or story, using details to appeal to the five senses.

**Comparison/Contrast Essay** tells about two or more main subjects by pointing out similarities and/or differences.

**Cause and Effect Essay** analyzes what causes certain things to happen or why things are a certain way, the results brought about by certain events, or both.

**[Overt] Argumentative Essay** makes a claim and then gives examples and evidence to prove that point.

**Classification or Division Essay** presents several topics by organizing them in a clearly defined pattern. [these “groupings” are then assigned a “class” label, based on assumed/proven “shared attributes”]

**Expository Essay** is an informative piece of writing that presents a balanced analysis of a topic. In an expository essay, the writer explains or defines a topic, using facts, statistics, and examples. [think “exposure”]

**Persuasive Essay** purpose is to convince the reader to accept the writer’s point of view or recommendation. The writer must build a case using facts and logic, as well as examples, expert opinion, and sound reasoning.

**Definition Essay** defines the true meaning + importance of abstract concepts, timeless values, specific terms. Definition essays explain deeper & more directly than dictionaries.

**Process Essays, or "Step-by-Step Guide"** – A process essay typically guides on how to do this or that, how this or that is done. It's a walkthrough, the so-called 'stepwise refinement'. Process essays work out in detail, demonstrating specific actions/giving specific instructions to be performed in a series.

**Critical Essays** – A critical essay brings somebody or something into focus, analyzing the strengths or weaknesses of things, events, people, etc. Critical essays discuss how well the work is done & whether its creator has managed the task by conveying the message in his/her book, film, painting.

Here are TOP-7 effective transitions for criticism: frankly speaking, with attention to, important to realize, another key point, first thing to remember, most compelling evidence, on the positive/negative side

NOTES: every non-fictional piece of writing is either a Process, Definition, Expository, Classification, etc., etc., essay... these are "EASY" to deconstruct (reverse-Engineer), to mimic, and improve upon... read others' essays from author's point of view

Many essays are "composite" in nature, meaning, they are combinations of many types of essays – again, easy to recognize and take apart.

Fictional pieces of work are often far more complex, as their purpose is to provide a layer of mystery: character motivation, agendas, complex dynamics, etc.

To get really good at writing fiction, learn to write non-fiction. Learn to write many different types of essays on a single subject – and in that manner, you learn about the subject as well as how to improve your writing, simultaneously.

All "art" is a form of elicitation (persuasive) essay called an "expression": paintings, novels, crafts, jewelry, our clothing etc., etc. – meant to project, to draw you into their world, to make you "feel" a certain way...

# Basic Machines Concept

## #1 Rule Safety First

A simple machine is a mechanical device that changes the direction or magnitude of a force. In general, they can be defined as the simplest mechanisms that use mechanical advantage (also called leverage) to multiply force. Usually the term refers to the six classical simple machines which were defined by Renaissance scientists, e.g. DaVinci [ cite:

[https://en.wikipedia.org/wiki/Simple\\_machine](https://en.wikipedia.org/wiki/Simple_machine)]:

Lever

Inclined plane

Wheel and Axle

Wedge

Pulley

Screw

Also noteworthy:

Needle – pierces, introduces material with force (think fangs)

Straw – utilizes vacuum/pressure to move liquid

Water Jet Pump – utilizes “draw” of liquid to pull along secondary set of liquid

Hydraulic (liquid)/Pneumatic (gas) pump – utilizes pressure to provide direct (vertical/in-line) leverage

Gear – utilizes ratios to maximize pulley mechanism (distance over effort)

Airfoil – the special shape of the airplane wing (airfoil) is designed so that air flowing over it will have to travel a greater distance faster, resulting in a lower pressure area thus lifting the wing upward. Lift is that force which opposes the force of gravity (or weight). [cite:

<http://www.allstar.fiu.edu/aero/flightmidfly.htm>]

Piston – A piston is a component of reciprocating engines, reciprocating pumps, gas compressors and pneumatic cylinders, among other similar mechanisms. It is the moving component that is contained by a cylinder and is made gas-tight by piston rings. [cite:

<https://en.wikipedia.org/wiki/Piston>]

Valve – A valve is a device that regulates, directs or controls the flow of a fluid (gases, liquids, fluidized solids, or slurries) by opening, closing, or partially obstructing various passageways.

Seal – A mechanical seal is a device that helps join systems or mechanisms together by preventing leakage (e.g. in a plumbing system), containing pressure, or excluding contamination.

# Basic Mechanical Engineering Terms

[https://en.wikipedia.org/wiki/Glossary\\_of\\_mechanical\\_engineering#V](https://en.wikipedia.org/wiki/Glossary_of_mechanical_engineering#V)

## #1 Rule Safety First

**Force** -- In physics, a **force** is any interaction that, when unopposed, will change the motion of an object. A force can cause an object with mass to change its velocity (which includes to begin moving from a state of rest), i.e., to accelerate. Force can also be described intuitively as a push or a pull. A force has both magnitude and direction, making it a vector quantity. **NOTE: Forces are applied in “exponential” fashion.**

**Acceleration**, in physics, is the **rate** of change of **velocity** of an object with respect to time. Acceleration is “exponential” in application.

**Torque, moment, or moment of force** (see "Defining Terminology" below) is rotational force. Just as a linear force is a push or a pull, a torque can be thought of as a twist to an object. **NOTE: Torsion is the act of being twisted**

**Vibration** is a mechanical phenomenon whereby oscillations occur about an equilibrium point.

**Shearing forces** are unaligned forces pushing one part of a body in one direction, and another part of the body in the opposite direction.

**Compression Force** is the application of balanced inward ("pushing") forces to different points on a material or structure

**Stress-Strain** – The relationship between the stress and strain that a particular material displays is known as that particular material's **stress–strain curve**. It is unique for each material and is found by recording the amount of deformation (strain) at distinct intervals of tensile or compressive loading (stress).

**Tensile Strength** – is the capacity of a material or structure to withstand loads tending to elongate (resists stretching; being pulled apart)

**Compression Strength** – which withstands loads tending to reduce size (resists being pushed together)

**Load Transfer** – the change in load (weight, burden) borne by different wheels of even perfectly rigid vehicles during acceleration

**Viscosity** – The **viscosity** of a fluid is a measure of its resistance to gradual deformation by shear stress or tensile stress. For liquids, it corresponds to the informal concept of "thickness"; for example, honey has a much higher viscosity than water.

**Vector** – In mathematics, physics, and engineering, a **Euclidean vector** (sometimes called a **geometric** or **spatial vector**, or—as here—simply a **vector**) is a geometric object that has magnitude (or length) and direction. Vectors can be added to other vectors according to vector algebra.

**Velocity** – Constant speed in a singular direction.



# Basic Bonds

## #1 Rule Safety First

Combine – e.g.: place a bunch of groceries into your shopping cart

Bond – structurally combine with hooks, triggers, ties, tape, etc. (hard to take apart without effort)

Glue (adhesive), Magnetic

Integration – math term; shared properties (when with intention: highlight desired, reduce the non-desirable properties)

Weld

Fuse together

Chemical Bond (Valency, Co-Valency, Double Co-Valency) “rule of 8”

“Folding” – multiple levels of shared properties

# **The AGES**

## **#1 Rule Safety First**

**Migratory – Hunt and Gather [thousands of years]**

**Agrarian – Beginning of City-States [thousands of years]**

**Bronze/Iron – Beginning of Voyages, Trades [couple thousand years]... replaced by steel (Carnegie, Morgan), then by carbon fiber, and now many ‘hybrids’**

**Renaissance – Writing, Beginning of Mass Communication [couple hundred years]**

**Industrial Age – advanced transport, machinery [just under 200 years]**

**Communication – telegraph, train, radio, t.v. (latest cell phone) [just over 100 years]**

**Consumerism – shift from producer to consumer of goods as primary social function [90 years]**

**Computer – shift from rooms of humans each performing a single calculation, to mechanical [70 years]**

**Information age – “Business Intelligence”, stock trends, game theory, data sorting [60 years]**

**Space age – race to get men into space, place foot on moon, place machines on Mars, extend machines to beyond Solar System, destroy threatening asteroids, harvest resources (asteroids), colonize [60 yrs]**

**Automation Age – replace humans with machines on farms, in factories, in manufacturing (latest CNC and 3d Printing), in service (ATM's, self-checkouts), distribution (Amazon model) [35 years]**

**Internet – extension/integration of Information, Computer, Communication [technically just over 50 years (banking channels), followed by military/education channels in 1980's, then “world wide web 1.0” – pragmatically just over 25 years]**

**Data Management – thinking of all information as data points... BIG DATA, DEEP LEARNING, DATA MINING/ANALYSIS, advanced business intelligence pushed by social networking models (3 years old, and growing exponentially)**

Goldman Sachs estimates occupations like truckers, secretaries, cashiers, bank tellers, waiters and real estate agents could be at high risk of automation in the near-term...

"It's about wisdom. It's about experience," said Ma, China's richest man and e-commerce mogul. "So I don't think the machine — the artificial intelligence — is going to replace the wisdom..."**It's going to be painful, some people who catch the wave will be rich, will be more successful. For everyone else, it will be more painful. The world is going to be data. The people will now have more data than the bosses..."**In the next three decades, the world will experience far more pain than happiness," the billionaire said, adding that "education systems must raise children to be more creative and curious or they will be ill-prepared for the future." — Jack Ma, founder and executive chairman of Alibaba

# **Basic Electrical Engineering Terms**

## **#1 Rule Safety First**

**Voltage**

**Amperage**

**Frequency (also a Music Term)**

**Watts**

**Hertz (also a Music Term)**

**Resistance**

**Capacity (also a Business Term)**

**Conductivity**

**Switch**

**Contact**

# Basic Chemical Process Attributes

## #1 Rule Safety First

Bonding (non-magnetic or adhesive)

Sharing Electrons –

“Valency” [outer electron shell, refers to stability or level of reactivity]

Reactions:

### Reaction type 1: Combustion reaction

*Combustion reactions take place when a compound containing carbon and hydrogen reacts with oxygen to make water vapor, carbon dioxide, and heat.*

### Reaction type 2: Synthesis reaction

*A synthesis reaction is a reaction in which simple compounds are combined to make a more complex one.*

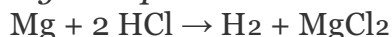
### Reaction type 3: Decomposition reaction

*A decomposition reaction is one where a molecule breaks apart into simpler ones.*

### Reaction Type 4: Single displacement reaction

*Occurs when a pure element switches places with an element in a chemical compound. Essentially, two atoms switch places, where one of the atoms isn't stuck to anything else.*

*Many metals will boil when you place them into a strong acid. For example, if you put magnesium into hydrochloric acid, you'll get the following single-displacement reaction:*



### Reaction type 5: Double displacement reaction

*Also called a double “replacement” reaction, this type of reaction occurs when the cations of two chemical compounds switch places.*

### Reaction type 6: Acid-base reaction

*If you combine an acid with a base, you'll get water and something else (often a salt). In any case, acid-base reactions are pretty much the same thing as double displacement reactions, except that water is one of the things that's made:*



## How to tell which type of reaction you've got:

If you're not sure what type of reaction you're dealing with, ask yourselves these questions ***in order***:

1. Does the equation contain O<sub>2</sub>, CO<sub>2</sub>, and H<sub>2</sub>O? Yes = combustion rxn.
2. Do simple things make something more complex? Yes = synthesis rxn.
3. Does something complex break apart? Yes = decomposition rxn.

4. Are there any pure, unbonded elements? Yes = single displacement.
5. Is water a product of this reaction? Yes = acid-base. No = double displacement.

Example of how: Determine the type of reaction here:  $\text{H}_2\text{O} \rightarrow 2 \text{H}_2 + \text{O}_2$

When you say “yes” to any of the questions, you’re done and that’s the type of reaction you’ve got. (If you answer the questions out of order, you’ll probably get it wrong).

Answering the questions:

1. The reaction contains  $\text{O}_2$  and  $\text{H}_2\text{O}$ , but *not*  $\text{CO}_2$ . Keep moving.
2. Simple things don’t make something more complex. Keep moving.
3. Something complex breaks apart to make simpler things. This is a decomposition reaction.

Cite: <https://chemfiesta.org/2015/09/08/the-six-types-of-reaction/>

**Acids are “corrosive” and have a pH level less than 7**

**Pure Water is neither acidic nor Alkaline, and has a pH level = 7**

**Bases (Alkalines) are “caustic” and have a pH level greater than 7**

**What does it mean for a solution to be acidic or basic (alkaline)?**

It all has to do with hydrogen ions (abbreviated with the chemical symbol  $\text{H}^+$ ). In water ( $\text{H}_2\text{O}$ ), a small number of the molecules dissociate (split up). Some of the water molecules lose a hydrogen and become hydroxide ions ( $\text{OH}^-$ ). The “lost” hydrogen ions join up with water molecules to form hydronium ions ( $\text{H}_3\text{O}^+$ ). For simplicity, hydronium ions are referred to as hydrogen ions  $\text{H}^+$ . In pure water, there are an equal number of hydrogen ions and hydroxide ions. The solution is neither acidic or basic.

An **acid** is a substance that donates hydrogen ions. Because of this, when an acid is dissolved in water, the balance between hydrogen ions and hydroxide ions is shifted. Now there are more hydrogen ions than hydroxide ions in the solution. This kind of solution is acidic.

A **base** is a substance that accepts hydrogen ions. When a base is dissolved in water, the balance between hydrogen ions and hydroxide ions shifts the opposite way. Because the base “soaks up” hydrogen ions, the result is a solution with more hydroxide ions than hydrogen ions. This kind of solution is alkaline.

Cite: [http://www.sciencebuddies.org/science-fair-projects/project\\_ideas/Chem\\_AcidsBasespHScale.shtml#acidicorbasic](http://www.sciencebuddies.org/science-fair-projects/project_ideas/Chem_AcidsBasespHScale.shtml#acidicorbasic)

**So widespread is the use of litmus in testing whether a solution or gas is acidic or basic, that the concept of a “litmus test” has spread to include any simple but definitive test. Politicians are always calling political issues a “litmus test”...**

**However, chemically the litmus test is a test for the acidity of a substance and is defined by the following rules:**

**red litmus turns blue in base**  
**blue litmus turns red in acid**

Cite: <http://genchem.rutgers.edu/litmus.html>