

Alexandria Township Public Schools



Instructional Handbook

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Instruction

Foundations of Instruction

Time During a Learning Episode

- A learning episode begins when *students focus on the teacher* with the intent to learn.
- The Primacy-Recency Effect
 - In any learning episode, the learner will remember **best** that which comes *first* and remember **second best** that which comes *last*.
 - The learner will remember least that which comes just past the midpoint of the episode.
- Implications for Teaching
 - **New information** should be taught during Prime-Time 1, because it is most likely to be remembered.
 - Because students will remember almost anything during prime-time 1, *only accurate information should presented.*
 - New material should be followed by practice or review during the down-time.
 - Closure should occur during the second prime-time.
- Expanding Prime-Times
 - The proportion of prime-time to down-time changes with the length of the teaching episode.
 - As the length of the lesson time increases, the *percentage of down-time increases faster than for the prime-times.*
 - Packaging learning segments into 20 minute time frames provides greater opportunities for student retention.
- Rest Between Learning Segments
 - Students are more likely to remain focused during learning segments if they go “off-task” between segments.
 - Telling an appropriate joke or story, playing music, doing a puzzle, or taking a quiet break and then going back onto task increases student retention.

Retention and Teaching Methods

- No one teaching method is best for all students, all of the time.
- Effective teachers skillfully use a variety of instructional methods.
- When selecting instructional methods, effective teachers bear in mind that students are more likely to retain and achieve when they are *actively engaged* in the learning.

Classroom Climate

- Threats and emotion affect memory processing.
- There is a hierarchy of response to sensory input.
 - Any input that is of a higher priority diminishes the processing of data of lower priority.
 - Before students will turn their attention to cognitive learning (curriculum) they must feel physically safe and emotionally secure.

Elements of Instructional Sequence

- Caution! This is not a checklist! Not every lesson needs every lesson component.
- This is a decision-making framework that utilizes scientific research on how we learn.
- Professional teachers thoughtfully consider each lesson component and choose those that are relevant to the learning objective.

Learning Objective

- All learning segments activities are developed to meet the learning objective.
- The teacher's objective for the lesson answers the question:
 - "What will I have students learn and what activity will I have students do that will serve as proof they have learned it?"
- Every lesson must have an objective.
- Avoid Teaching Concepts that are Very Similar
 - Whenever two concepts have more similarities than differences (latitude and longitude, simile and metaphor, mitosis and meiosis), there is a high risk that the learner will not be able to tell them apart.

- If the number of similarities far exceeds the differences:
 1. ***Teach the two concepts at different times.*** Make sure the students understand the first concept before introducing the second.
 2. ***Teach the differences first.***
- Anatomy of an Objective
 - Level of cognition to be attained by the student
 - Essential content
 - Observable student proving behavior that is congruent to the level of cognition.
 - Expected level of performance.
 - *The learner will comprehend the meaning of the terms “capitalism” and “free enterprise” by explaining each term in his/her own words with 100% accuracy.*

Level of Cognition

- Revised Bloom’s Taxonomy
- The revised taxonomy retains the six levels of cognition but changes the labels to verb form, renames three of the levels, and interchanges the top two levels.
- It is now a more open and fluid model, recognizing that an individual may move among the levels during extended cognitive processing. In some cases the levels overlap.
- Remember
 - Rote recall and recognition of previously learned material.
 - The lowest level of learning because there is no presumption that the learner understands what is being recalled.

Examples

- What is the definition of a verb? (define)
 - Label the three symbols on this map. (label)
 - What are the three branches of government? (recall)
 - Which object in this picture is an isthmus? (recognize)
- Understand

- The ability to accurately make sense of the material.
- Understanding may occur by **converting** the material from one form to another (words to numbers), by **interpreting** the material (summarizing a story) or by **estimating** future trends (predicting the consequences of effects).

Examples

- Tell the story in your own words (convert)
- Why did Goldilocks like the baby bear's things best? (interpret)
- What do you predict would have happened if the Japanese did not bomb Pearl Harbor? (predict)

○ Apply

- The ability to use learned material in new situations with no cues or clues.
- It includes the application of such things as rules, concepts, methods and theories to solve novel problems without teacher assistance.

Examples:

- Use each vocabulary word in a new sentence.
- Calculate the area of your bedroom.
- What would Abraham Lincoln say if he watched a present day newscast?

○ Analyze

- The ability to break material into its component parts so that its structure may be understood.
- It includes identifying parts, examining the relationship of the parts to each other and to the whole, and recognizing the organizational principles involved.
- The learner must be able to organize and reorganize information into categories.

Examples

- How are the stories Cinderella and Sleeping Beauty different?
- How are Martin Luther King Jr. and Malcolm X the same?
- Which of the statements in this editorial are fact and which are opinion?
- Sort this collection of rocks into three categories and state the rule used to make these decisions.

○ Evaluate

- The ability to judge the value of material based on **specific criteria and standards**.

- The learner may determine the criteria, or it may be given to them.

Examples

- Which of the two main characters in the story would you rather have as a friend? Why?
- Is violence ever justified in correcting injustices? Why or why not?
- Which of the environments we've studied seems like the best place to live? Defend your answer.
- Critique these two commercials and defend which one you would recommend to the company CEO.

○ Create

- The ability to put parts together to create a pattern or structure that is new to the learner.
- It may involve the production of a unique communication (essay or speech), a plan of operations (research proposal) or a scheme for classifying information.

Examples

- Rewrite the story as Goldilocks and the Three Fishes.
- Design a different way of solving this problem.

○ **Complexity and Difficulty**

- **Complexity** is the thought process the brain uses to deal with information. Learning becomes more complex as you move up the taxonomy.
- **Difficulty** is the amount of effort the learner must expend within a level of complexity to accomplish a learning objective.
- To raise student's higher level thinking skills requires increasing the complexity of learning objectives and activities.

○ **Objective Format**

- **The learner will** understand (cognition) the concept of a noun (content) **by** circling the word run in those sentences where run is a noun (congruent proving behavior) **with** 90% accuracy (performance level).

○ **Communicating the Objective**

- Students must know what they should learn (the content) and how they will know they have learned it (the overt proving behavior). This must be communicated to the learner at the beginning of a learning segment orally

- “Today you will learn the process of regrouping. You will use this process to solve ten problems.”

Anticipatory Set

- A quality anticipatory set has three defining features:
 - It focuses the learner’s attention on the content.
 - It activates the students’ prior learning in order to help with the acquisition of new learning.
 - It provides diagnostic information to the teacher about what the students’ already know or can do.
- When an anticipatory set is used, it begins the lesson and is the first activity during Prime-time 1.
 - Example of an Anticipatory Set
 - Prior to learning about suffixes:
“Everyone think about what we learned yesterday about prefixes. On scratch paper, please list three example prefixes. On my signal you will turn to your partner, read your three prefixes and state why they are examples of prefixes.”
 - Prior to learning about Columbus’s voyage:
Imagine you were driving a car with no brakes and you suspected a bridge over a high gorge might be washed out. You are going downhill when you round the bend to cross that bridge. How might you feel?

Purpose

- The brain asks two questions to determine whether information will be stored.
 - Does this make sense?
 - Does it have meaning?
- If something makes sense and has meaning, the likelihood of long-term storage is very high.
- Meaning is the more significant factor in determining long-term storage.
- Importance for Teaching
 - Meaning refers to the relevancy that student’s attach to new learning.
 - Future use is perhaps the greatest factor to consider when attempting to establish relevancy. Prior experience can also be powerful.

- *After stating the learning objective*, the teacher must explain to students why it is important to accomplish that objective.
 - Example: “Learning about suffixes will help you understand more vocabulary and give you greater creativity in your writing.”

Input

- The act of giving students the information, sources, and skills they need to accomplish the learning objective.
- When introducing new information, *input follows purpose in a learning episode*.
- There are many methods teachers can use to provide input. They include:
 - Reading
 - Cooperative learning groups
 - Audiovisual presentations
 - Direct instruction
 - Demonstration
- When presenting new information there are three guidelines to follow.
 - Input –Guideline #1
 - **Identify and communicate the unique, unvarying elements of the concept which make it different from all other similar concepts.**
 - **Social Studies** – A law is a rule made by a government entity that is used for the control of behavior, is policed, and carries a penalty if broken.
 - **Science** – A mammal is an animal that has hair and mammary glands.
 - **Mathematics** – A triangle is a two-dimensional figure that is closed and three-sided.
 - **Language arts** – A simile is a figure of speech that compares two unlike things.
 - Input – Guideline #2
 - **Examine the basic structure of the information and present it in an organized way.**

Common Organizational Patterns:

 - *Classification* – A is an example of B
 - A cat is a mammal

- *Defining* – A is a property of B
 - All mammals have hair.
 - *Equivalence* – A is identical to B
 - $2(a + b) = 2(b + a)$
 - *Similarity* – A is similar to B
 - A donkey is like a mule.
 - *Difference* – A is unlike B
 - A spider is not an insect.
 - *Quantity* – A is greater/less than B
 - A right angle is greater than an acute angle.
 - *Time Sequence* – A occurs before/after B
 - In mitosis, prophase occurs before metaphase.
 - *Causal* – A causes B
 - Combustion produces heat.
 - *Enabling* – A enables/allows B
 - A person must be 18 years old to vote.
- Input – Guideline #3
 - **Present new information both verbally and visually.**
 - When designing and using visual aids make sure they accurately demonstrate the organizational patterns within and between concepts.
 - Vertical positioning implies steps, time sequences or hierarchy. To indicate the order of the state’s admission into the Union the information should be written as:
 - Delaware
 - Pennsylvania
 - New Jersey

Models/Examples

- Models and examples are necessary when the learner lacks experience and thus cannot visualize the concept or generalization being taught.
- A *model* is a concrete (an engine) or symbolic (a map) example of the new learning.
 - As part of instruction on suffixes, the teacher might provide the following examples:

“Examples are: less, as in helpless; able as in drinkable; and ful, as in doubtful.”
- To be effective, a model must:
 - Accurately and clearly highlight the critical attribute(s) of new learning.

A human being, a cat, a dog and a gerbil are mammals because they all nurse their young through mammary glands and have hair.

- Avoid controversial issues that can evoke strong emotions and redirect the learner's attention.
- Be given first by the teacher to ensure they are accurate (Prime Time 1).
- Avoid non examples until students have demonstrated a basic understanding of the concept.

Checking for Understanding

- The strategies the teacher uses to verify a student's understanding of the learning objective.
- Based on results, teacher decides to provide additional input and models/examples or moves onto guided practice.
- Check can take many forms.
 - Questioning
 - When asking a question, the teacher must: Provide 5 seconds (or more) of "Think Time" for all students to generate a possible response. Can also be done through writing.
 - Randomly select students to provide a response. *No volunteers!*
 - If the answer is correct, provide 1-2 seconds of "**Think Time**" for students to process the answer.
 - If the answer is incorrect, dignify the mistake but *persist with the student*.
 - Correcting Mistakes
 - Supply the question to which the wrong answer belongs:
"You would have been right if I had asked..."
 - Provide a prompt that leads to the correct answer.
 - Provide the answer and have the student repeat it.
 - Group Response Strategies
 - **Everyone write or draw**....
Everybody write the answer to this problem on the whiteboard. On my signal hold it up for me to see."
 - **Choral response**
"Everyone, what is this word? One, two, three, call it out"

- **Signaling**
 “Hold up your white card if the answer is true or your black card if the answer is false.”
 “Hold your thumb up if the answer on the board is correct; Hold your thumb down if it is not.”
 “On my signal, show me the number of the correct answer by holding up that number of fingers.”

Principles of Practice

- Practice does not make perfect. **Practice makes permanent.** Only perfect practice makes perfect.
- It is very difficult to change a skill that has been practiced and remembered, even if it is not correct.
- Practice periods that are short, frequent, and intense are the most effective.
- For learning to occur and be retained, two different types of practice must occur.
 - **Massed practice:** Practicing a new learning during time periods that are very close together.
 - **Distributed practice:** Sustained practice over time. This type of practice is critical for retention.
- Effective practice begins with massed practice for fast learning and proceeds to distributed practice for later retention.
- Students **must continuously practice important previously learned skills throughout the school year!**
- Practice done in the presence of the teacher. This enables the teacher to provide corrective feedback that assists the student in achieving accurate performance.
- Guided practice should precede independent practice.
- As students perform guided practice, the teacher must provide *prompt* and *specific* feedback on whether the practice is correct or incorrect and **why**.

Closure

- The covert process by which the learner summarizes for him or herself their perception of what has been learned.

- ***Closure is not review!*** In review, the teacher does most of the work. In closure, the student does most of the work by mentally rehearsing and summarizing those concepts and deciding whether they make sense and have meaning.
- Using Closure
 - Teacher provides specific directions for what the learner should process and provides adequate time to accomplish it.
 - While a covert process, it should include an overt product (which can take many forms).
 - “I’m going to give you two minutes (time) to think of the three causes of the Civil War (focus) that we learned today. Be prepared to share them with a partner (product).”

Independent Practice

- After the teacher believes the learner has accomplished the objective at the correct level of difficulty and complexity, students try the new learning on their own.
- The primary purpose of independent practice should be to ***enhance retention*** and ***develop fluency***.
- Homework
 - Should be approximately ten minutes per night, per grade level (starting in grade 1).
 - *Grade 2 = 20 minutes, Grade 6 = 60 minutes.*
 - Must be done to accomplish a ***clear purpose***.
 - Rehearsal of new learning.
 - Preparation for new learning.
 - Should involve minimal parental involvement in the actual completion of assignments.
 - Should result in timely feedback from the teacher. Written comments are especially effective.

Brain Specialization and Learning

- The left and right hemispheres of the brain are specialized and process information differently.
 - However in complex tasks, both hemispheres are engaged.
- The Left Hemisphere
 - Monitors the areas for speech

- Recognizes
 - Words, letters, and numbers written as words
 - Understands literal interpretation of words.
 - Processes information analytically
 - Evaluates factual information in a rational way.
 - Detects time and sequence.
 - Processes external stimuli
- Right Hemisphere
 - Interprets language through context
 - Body language, emotional content, tone of voice.
 - Specializes in spatial perception.
 - Recognizes places, faces, and objects
 - Pattern seeking.
 - Processes internal messages.
- Specialization Does Not Mean Exclusivity
 - Functions are **rarely exclusive** to one hemisphere!
 - Most tasks performed by either hemisphere
 - Hemispheres processing is complementary
 - Greater comprehension of the situation.
- Hemispheric Preference
 - Most people have a dominant hemisphere.
 - Level of dominance ranges from neutral to strongly left or right.
 - Left-hemisphere dominant individuals tend to be more:
 - Verbal, analytical, and able to solve problems.
 - Right-hemisphere dominant individuals tend to:
 - Paint and draw well, be good at math, deal with the visual world more easily than with the verbal.
 - When completing a simple task, the hemisphere specializing in that task will be used

- Faced with a complex task, the preferred hemisphere will take the lead.
- Teaching is a complex task. **We tend to teach the way we learn!**
- The Gender Connection
 - The brains of males and females organize differently from very early in their development.
 - More girls than boys are left-hemisphere preferred.
 - More boys than girls are right-hemisphere preferred.
 - Beware of the stereotype!
- Schools and Hemispheric Processing
 - Schools are predominately left-hemisphere oriented.
 - Structured environments
 - Run according to time schedules
 - Favor facts and rules over patterns
 - Predominately verbal instruction
 - Left-hemisphere preferred learners (mainly girls) feel more comfortable in this environment.

Two Strategies for Teaching to the Whole Brain

- Vocabulary Instruction
 - A six step process for teaching new terms.
 - Multiple exposures with increased level of understanding over time.
 - First three are massed, four through six are distributed.

Step one: Provide a description, explanation, or example of the new term. Not the dictionary definition of the term.

Example:

Function – “A function is a relationship between two things like height and weight. As one goes up, the other goes up. Isn’t it generally true that as you have grown in height over the years, your weight has also gone up? We could describe this relationship by saying, “Your weight is a function of your height.”

Step two: Direct students to restate the description, explanation or example in their own words.

- Critical that they do not copy what you have said.
- Constructions need not be comprehensive, but efforts should be made to ensure a lack of major errors.
- Students record their descriptions, explanations, and examples in their notebook.

Example:

Function – It's when one thing makes another happen or one thing goes up the same way that another goes up.

Step Three: Direct students to construct a picture, symbol, or graphic representing the term or phrase.

- Options:
 - Draw the actual thing (diameter)
 - Draw a symbol for the word (justice).
 - Draw an example of the term (food chain).

Step Four: Engage students periodically in activities that help them add to their knowledge of the terms in their notebooks.

- Each time students engage in these activities they should be provided with opportunities to add to, or revise, the entry for the term in their notebook.
- Revision might be to initial description or drawing, or
- Use extra space to highlight new information and record new insights.

Step 4 – Possible Activities

- Comparing terms:
Sentence stems
_____ and _____ are *similar* because they both _____
_____ and _____ are *different* because _____ is _____, but _____ is _____.
- Venn Diagram:
- Double Bubble – Identify the two items they are going to compare and then record the information in the appropriate bubbles.
- Matrix – Three or more terms can be compared.
- Solving Analogy Problems:
 - Present students with an analogy problem:
Bone is to *skeleton* as *word* is to _____ .
Harry Truman is to *World War II* as _____ is to _____ .
 - Students share answers.

- Make sure they include a description of the relationship that both sets of terms have in common.

Step Five: Periodically direct students to discuss the terms with one another.

- Think-Pair-Share
 - Allow for time to revise or add to descriptions in their notebooks after discussion.
 - Monitor work to ensure additions and revisions are accurate.

Step Six: Involve students periodically in games that allow them to play with terms.

- Jeopardy
 - Term written in each cell. Cell covered.
 - Teacher reveals term; students indicate they know the meaning by stating a question for which the term would be the answer.
 - Teacher decides if answer represents adequate understanding of the term.
- Vocabulary charades
 - Organize students into teams.
 - Create decks of index cards, each containing one term.
 - Give one or more cards to each team member.
 - That team member stands in front of the team and begins to act out the term or terms.
 - Remaining team members guess the term.
- \$100,000 Pyramid
 - Write a category name within each cell.
 - Hide the category names.
 - Assign students to work in pairs or small groups. One player on each team can see the game board. One cannot.
 - Reveal the first category; clue giver begins to list terms pertaining to that category.
 - Once correctly identified, move to the next category.
- Pictionary
 - Organize students into pairs or small groups.
 - One student per team designated to draw.
 - Person doing drawing faces word display. Teammates guessing have their backs to the display.
 - Designated “drawer” draws pictures representing the meaning of the terms – no letters or numbers.
- Talk a Mile a Minute

- Teams of students given a list of terms organized into categories.
 - Team designates a “talker” who is provided with a list of words under a category title.
 - Talker tries to get the team to say each of the words by quickly describing them.
 - Talker is allowed to say anything about the terms, but may not use any words in the category title or any rhyming words.
 - Talker keeps talking until the team members identify the first term in the category. The talker then moves quickly to the next term in the category until all items have been guessed or time has been called.
- Combination Notes
 - Page of notes divided into three parts by a line running down the middle of the page and a horizontal line near the bottom of the page.
 - Method for Using Combination Notes
 - Students stop periodically to make a graphic representation of their notes on the right hand side of the page.
 - At the end of the note taking or periodically throughout the process, students record summary statements of what they have learned in the space at the bottom of the page.

Effective Praise & Criticism

- Evaluative vs. Descriptive Praise
 - Evaluative praise demonstrates teacher approval but gives no specifics in terms of the appropriate behavior that led to that praise. It sounds like:
 - *“Good job Jason. Keep it up!”*
 - Descriptive praise describes the behavior observed and its effect: It sounds like:
 - *“You really did a good job working through all of the steps and checking your answers for this problem. I know you have had difficulties with multi step calculations before and sometimes settled for getting any answer down on paper. You were able to complete all of the problems and earned an A on this paper.”*
 - Evaluative praise creates a short-term benefit. The problem is that long-term evaluative praise creates dependency on the source of the praise.
 - When praising students it is better to use descriptive praise.
 - Evaluative vs. Descriptive Criticism

- Evaluative criticism labels students and creates resentment as well as resistance. It sounds like:
“Samantha, I am shocked and disappointed by your behavior.”
- Descriptive criticism gives students information about behaviors that are not productive to the learning process. It sounds like:
“Alex, you worked quickly through proofreading your paper and did not use the editing checklist. As a result, you missed several mistakes. This made it difficult to focus on the message of your essay.”
- If you feel that criticism is in order, do it descriptively and if possible privately.

ASSESSMENT

Assessment Basics

- All assessments must be linked to specific learning objectives.
- No one assessment tool is capable of producing the quality of information necessary for making an accurate judgment of a student's knowledge and skills.
- Classroom assessments can take many different forms. However, each form of assessment is not equally well suited for assessing different aspects of student learning.
- Combining various assessment tools to measure student's knowledge of content will result in a "union of insufficiencies" which in turn provides a more accurate picture of each individual's learning.
- Assessment must be used to guide instructional planning and provide feedback to student's on their learning.
- A test is at best an inference-making enterprise in which we formally collect overt evidence from students to arrive at what we hope are accurate inferences about student status with respect to covert, educationally important variables.
- Almost every worthwhile thing that educators try to teach cannot be seen, only inferred.
- The accuracy of these inferences is critical because a teacher's understanding of students' knowledge, abilities, and attitudes should form the basics for a teacher's instructional decisions.

Fundamental Definitions

- **Assessment vs. Evaluation**
 - **Assessment** – Vehicles for gathering information about students' achievement or behavior.
 - **Evaluation** – The process of making judgments about the level of students' understanding or performance.
 - *The quality of an evaluation is only as good as the assessment data on which it is based.*
- **Summative vs. Formative**
 - **Formative Assessments** – Ongoing assessments conducted throughout a specified time period.
 - **Summative Assessments** – An assessment that occurs at or near the end of a specified time period.
- **Measurement, Score and Grade**
 - **Measurement** – The assignment of marks based on an explicit set of rules.

- **Score** – The number(s) or letter(s) assigned to a test via the process of measurement.
- The terms mark and score are commonly used synonymously in psychometrics
- **Grade** – The number(s) or letter(s) reported at the end of a set period of time as a summary statement of evaluations made of students.

○ **Reliability and Validity**

- Regardless of the type of assessment tool selected, the higher the levels of reliability and validity the more accurate the assessment information obtained will be.
- Each form of assessment has different components of reliability and validity that are especially critical to consider.
- **Reliability** – The degree to which an assessment is repeatable, consistent, and dependable.
 - *Interrater Reliability*: The degree of agreement two different raters have in assessing the same student performance.
 - *Intrarater Reliability*: The degree to which the same rater would give the same score, if the same performance was rated again at another time.
- Both scores are computed using the formula:
 - $$\text{Inter or Intra Reliability} = \frac{\text{Number of agreements}}{\text{Number of disagreements}}$$

The resulting score will be a reliability coefficient. It is desirable to have the Number in these coefficients to be:

 - Positive (Between 0 and 1)
 - As large as possible (Between 0 and 1)

○ **Scores and Reliability**

- Assessment scores are made up of three different components.
 - *Observed score*: The score recorded or observed.
 - *True Score*: A theoretical score which represents what the individual really knows independent of any measurement error.
 - *Error Score*: The difference between the observed and the true score.
- The lower the error score, the greater the reliability.
- Error scores consist of two types of errors.
 - **Trait errors**: Sources of errors residing within the individual being assessed (lack of sleep, strong emotions).

- **Method errors:** Sources of errors that reside within the assessment context (Poor instructions, uncomfortable room temperature)
 - *The goal is to reduce the sources of errors as much as possible.*
- **Improving Assessment Reliability**
 - Write clear directions and use standardized administrative procedures.
 - Increase the number of sample items and/or the frequency of assessments.
 - Avoid poorly worded, ambiguous, or tricky assessment prompts.
 - Plan and write your assessments well ahead of the time they are to be administered.
 - Moderate the difficulty of the assessments. Assessments that are too difficult or easy have low levels reliability.
 - Increase the objectivity – the extent to which equally competent responses obtain the same score.
 - Minimize the effects of external events.
 - Minimize the impact of environmental factors.
- **Content Validity**
 - Although there are many different types of validity, in designing classroom tests we are most concerned with content validity.
 - **Content Validity** – Property of a test in which the sample of items truly reflects the universe of items for which the test is designed.
- **Improving Content Validity**
 - Does the collection of items required to complete the test fairly represent all of the items that could be selected?
 - Are the number of items on the test reflective of the amount of time spent teaching each topic?
 - **Assessments should be developed prior to and should serve as a guide to instruction.**
- **Table of Specifications**

- Table of specifications is a grid that can serve as a guide to the construction of a classroom test.

| Topic | Amount of Time Spent in Class | Question Numbers |
|--------------------|-------------------------------|---|
| Measurement Terms | 35% | 1,2,3,4,5,6,7,8,10,11 13,14,15,16,17,18,20 |
| Reliability | 15% | 9,12,19,21,22,23,24,28 |
| Validity | 20% | 25,26,27,29,30,31,32, 33,34,35 |
| Short-Answer Items | 15% | 36,37,38,39,41,42,44 |
| True-False Items | 15% | 40,43,45,46,47,48,49,50 |
| Total 100% | | |

Selected & Extended Written Response Items

- There are three basic categories of selected response questions:
 - Forced-choice items
 - Short answer items
 - Essay questions

| Aspects of Assessment | Effectiveness of Question Types | | |
|-------------------------|---------------------------------|-------|--------------|
| | Forced-Choice | Essay | Short-Answer |
| Informational Topics | M | H | H |
| Process Topics | L | M | L |
| Thinking and Reasoning | M | H | H |
| Communication Skills | L | H | L |
| Non-Achievement Factors | | | |

Key: H = High, M = Medium, L = Low

- **Short-Answer and Completion Items**
 - Used almost exclusively to assess lower-level thinking skills such as memorization and basic knowledge.

| Advantages | Disadvantages |
|--|--|
| <ul style="list-style-type: none"> ❖ Very Flexible ❖ Minimize guessing ❖ Easier to write ❖ Allow for many items to be used | <ul style="list-style-type: none"> ❖ Scoring can be subjective ❖ Limited scope of cognitive skills can be assessed ❖ Single answer questions are difficult to create. |

○ Guidelines for Writing

- If you have a choice, create a short answer question rather than a completion question. Instead of asking,

The precursors of T cells leave the bone marrow and mature in the _____.

Ask: In what gland do T cells mature?

- Questions are clearer and more straightforward, thus leaving less room for ambiguity.
- Avoid grammatical clues to the correct answer.

Hippocrates, the author of the Hippocratic Oath, was trained as a _____.

Better would be:

Hippocrates, the author of the Hippocratic Oath, was trained as a
(n) _____.

- The first answer cues the test taker that the answer has to begin with a consonant.
- Do not copy short answer or completion items, straight from the study material that test takers are using to prepare.
- Place the blank for the completion item at the end of the item.

The speed of light in meters per second is _____.

Instead of _____ *is the speed of light.*

- When the blank appears at the beginning of an item, a test taker can easily get stuck and not be able to get past it. When the blank comes at the end of the question, the test taker has been prepared by the preceding information.
- When requiring numerical answers, be sure to specify the precision of the answer you want and the units in which you want the answer expressed.
- Make sure blank spaces are equal in size across items and kept to a minimum.

“To” is a preposition, whereas _____ and _____ are other parts of speech.

Better would be

“To” is a preposition, whereas other parts of speech that sound the same are _____ and two.

- Short answer and completion items should be written so there is only a single and brief answer that is correct.

The United States Secret Service was created in 1862 to _____.

Answers for this could be “guard the integrity of currency, counteract counterfeiting, make sure that only genuine currency is used for commerce, etc...”

○ **Forced-Choice Items**

- Multiple Choice Items included a stem, a number of distracters, and a correct choice.

| Advantages | Disadvantages |
|--|--|
| <ul style="list-style-type: none">❖ Can be used to measure learning outcomes at almost any level of cognitive complexity.❖ They minimize guessing.❖ They are easy to score.❖ They can be easily analyzed for their effectiveness. | <ul style="list-style-type: none">❖ They take a long time to write correctly.❖ They limit creativity.❖ They may have more than one correct answer. |

○ **Guidelines for Writing Multiple-Choice Questions**

- List alternatives on separate lines and make them consecutive.

The first president of the United States was
a. Washington b. Jefferson c. Lincoln d. Kennedy

Better would be

The first president of the United States was
a. Washington
b. Jefferson
c. Lincoln
d. Kennedy

- Never use “all of the above” as an answer choice, but use “none of the above” to make items more demanding.
- Be sure that each item reflects a clearly defined learning outcome.
- Be sure that the position of the correct alternative varies such that each position is represented an equal number of times (or close to it).
- Avoid grammar clues.
 - a) *Mirepoix is a*
 - *Mixture of onions, carrots and celery.*
 - *Ingredients for fondant icing.*
 - *Entrée served in France*
 - *Alternative to flour used in baking*

Based on grammar alone, A is the only correct answer.

- The stem of the item should be self-contained and written in clear and precise language. A poor example is:

New York City is the site of the next Olympics and

- a. *has a new stadium for track and field*
- b. *is building a new stadium for track and field*
- c. *will be using only the Jets stadium in New Jersey*
- d. *hasn't yet completed plans for where stadium events will take place*

A better example is:

The current population of New York City is

- a. *More than 15,000,000*
- b. *Less than 15,000,000*
- c. *More than 25,000,000*
- d. *Indeterminate*

- Avoid negatives, absolutes, and qualifiers in question stems. An example of a poor question is:

Not only do cicadas come every 17 years, but they never arrive

- a. *during the rainy season.*
- b. *only if the temperature is sufficiently warm.*
- c. *whenever the ground is soft enough for them to merge.*
- d. *after June 1.*

- Make sure that all distracters are plausible. An example of a poor question is:

The square root of 64 is

- a. *64*

- b. 8
- c. 642
- d. Infinity

- Items need to be independent of one another. The answer on one item should not give the test-taker the answer on another item.

○ **Alternative Multiple Choice Formats**

- Alternate choice: A multiple choice question with only two options:

An engineer who designs a house is called

1. *An architect*
2. *A draftsman*

- Particularly useful in testing students' knowledge of terms and phrases.
- Rearrangement multiple-choice items. Test taker arranges a set of items into sequential order. Useful for testing students' knowledge of a process or temporal sequence.

○ **Analyzing Multiple-Choice Questions**

- Place all of the scores for all of the test takers in descending order.
- Divide the group in half with the top half being the High group and the bottom half being the Low group.
- Compute the difficulty and discrimination index for each question (or select questions of interest).
- Difficulty Index - A formula resulting in a percentage reflecting the number of correct responses in both the low and the high group. The formula is:

$$D = \frac{NH + NL}{T}$$

D = Difficulty level.

NH = Number of correct responses in the high group.

NL = Number of correct responses in the low group.

T = The total number of responses to the item.

- Discrimination Index - A formula resulting in a percentage reflective of how effectively an item discriminates between the high and low groups. The formula is:

$$D = \frac{NH - NL}{(.5) T}$$

D = Discrimination level

NH = Number of correct responses in the high group.

NL = Number of correct responses in the low group.

T = The total number of responses to the item.

▪ **The Perfect Item**

- Sufficiently difficult is 50% of all test takers get the answer correct.

$$D = 50\%$$

- Sufficiently discriminates if all the test takers in the high scoring group get the item correct and all the test takers in low scoring group get it wrong.

$$d = 1.0$$

○ **Matching Items**

- Matching items are often used when you want to use the same response in more than one question and such a practice would threaten the integrity of the test.

| Advantages | Disadvantages |
|---|---|
| <ul style="list-style-type: none"> ❖ Straightforward and clear in their presentation. ❖ Easy to administer ❖ Allow for comparison of ideas and facts. ❖ The value of guessing is decreased. | <ul style="list-style-type: none"> ❖ The level of knowledge tested is limited. ❖ These test items can emphasize memorization. |

○ **Guidelines for Writing matching Items**

- The number of options or responses must be more than the number of premises.
- All premises and responses should be reasonable.
- Responses should not be listed in the same order as the corresponding premises.
- Describe the basis for matching and the number of times a response can be used.
- The number of options or responses must be more than the number of premises.
- All premises and responses should be reasonable.

- Responses should not be listed in the same order as the corresponding premises.
- Describe the basis for matching and the number of times a response can be used.
- The premise should contain more words than an option. A poor example is:

(Premise)

Column A

1. Analysis of variance

(Option)

Column B

a. The inferential technique that is used when you want to test the difference between the strength of two correlation coefficients and the assumptions of normality are not violated.

2. t test

b. The inferential technique that allows you to determine whether is a difference between the means of two or more samples.

- Place the premises in some logical order, such as alphabetical or chronological. Also try to make sure they appear in groups that are similar in content and difficulty.
- Make sure that all premises and responses appear on the same page.
- Make sure each premise has only one correct response.
- Columns should be labeled to orient and assist test takers.

○ **Expanded Matching Format**

- This format allows for students' knowledge of a number of factors to be assessed.

| Person | Activity | Time |
|---------------|---------------------------------------|----------------|
| A. Lincoln | 1. Led U.S. Forces in Korean conflict | 6. About 1770 |
| B. Jefferson | 2. Abolished Slavery | 7. About 1950 |
| C. MacArthur | 3. First President | 8. About 1800 |
| | 4. Wrote Declaration of Independence | 9. About 1860 |
| | 5. Landed in Plymouth Rock | 10. About 1840 |

Answer Sheet

| Person | Activity | Time |
|---------------|-----------------|---------------|
| A. Lincoln | | 6. About 1770 |
| B. Jefferson | | 7. About 1950 |
| C. MacArthur | | 8. About 1800 |

○ **True-False Test Items**

- Often used when there is a clear, unequivocal distinction between two alternatives.

| Advantages | Disadvantages |
|--|---|
| <ul style="list-style-type: none"> ❖ Many can be administered in a short amount of time. ❖ They are easy to score. | <ul style="list-style-type: none"> ❖ Difficult to write in absolutes unless the most basic of facts are being considered. ❖ Emphasis on these test items is on memorization. ❖ The probability of guessing correctly is 50%. |

○ **Guidelines for Writing True-False Test Items**

- True-False items must always be stated as declarative sentences.
- Alternative answers can be true-false, right-wrong, yes-no (or whatever else) as long as they are very clear choices.
- A good true-false item focuses on one and only one idea, concept or specific topic.

Example of a poor item

True or False? A roux is prepared using fat and flour, and is always used as the first step in the preparation of a sauce?

Better version of same item

True or False? A roux can be prepared using fat and flour.

- Avoid double negatives in your questions.

Example of a poorly designed question:

Yes or No? Neither Technique #1 nor Technique #2 should be used with caution?

Similar question in much better form:

Yes or No? Technique #1 should be used with caution?

- **Be careful of qualifiers such as “always”, “never”, “sometimes”, and so on.**
- Do not include clues to the answer in your item.

- Have an approximately equal number of true and false items on the test. Unsure of an answer most students will select true, and most tests have more answers that are true than false.

○ **Correcting Scores for Guessing**

- If a scoring system is based on students getting 1 point for being correct, 1 point for incorrect and nothing for leaving the answer blank, the formula for correction is:

$$CS = R - W$$

CS = corrected score

R = number of correct

W = number incorrect

Example: 50 item test. A score by chance alone would be 25. Student gets a 35. Student's new score would be $35 - 15 = 20$.

○ **Essay Items**

- Essay items are an excellent choice if you want an unrestricted response and desire to access high-order thinking.

| Advantages | Disadvantages |
|--|--|
| <ul style="list-style-type: none"> ❖ Increased test security/reduced plagiarism ❖ Unparalleled flexibility ❖ Relatively easy to write ❖ Can assess higher-order thinking and reasoning skills. | <ul style="list-style-type: none"> ❖ Emphasize written language ❖ Can be difficult to score ❖ Limit scope of sampling |

○ **Guidelines for Writing Essay Questions**

- Allow adequate time to answer the question.
- Be sure the question is complete and clear. Be precise about what is required in the answer.

Discuss the impact of the Civil War on the economy of the postwar South.

Better would be:

Discuss the impact of the Civil War on the economy of the postwar South, taking into account the following factors: reduction in the work force, international considerations, and the changing role of agriculture.

- Use essay questions to evaluate higher-order outcomes, such as when comparisons, evaluations, analysis, and interpretations are required.

- Have all test takers answer the same questions.
- **Scoring Essay Questions**
 - Assessor fatigue is a huge threat to reliability. Grade essay questions in batches and pace yourself as you score essay items.
 - Use a model correct answer to have as a basis for comparison. Create this model when you initially develop the question. Rubric scoring also is a possibility.
 - Score each question across all test takers.
 - If possible, grade the responses without knowing the test taker’s identity.

Performance Assessments

- **Performance Tasks**
 - Performance tasks have the following characteristics:
 - Students have some **choice** in selecting the task.
 - The task requires both the elaboration of **core content knowledge** and the use of **specific processes**.
 - The task has an **explicit** scoring system.
 - The task is designed for an **audience** larger than the teacher.
 - The task is carefully crafted so that it **measures what it purports to measure**.
- **Types of Performance Tasks**
 - **Restricted** – highly structured to fit a specific instructional objective
construct a graph from a given set of data.
 - **Extended** – Tasks that so comprehensive that numerous instructional objectives are involved.
“Assume you are investing \$40,000 in the stock market for your college education. Select the stocks, make a record of their value for 30 days, then write a report describing your success and indicating what changes you would make in your portfolio of stocks”.
- **Advantages/Disadvantages**
 - **Advantages**
 - Tasks are motivating because they correlate to real-life experiences.
 - Tasks assess student’s ability to apply the knowledge and skills learned to real problems.

- **Disadvantages**

- Tasks require extended amounts of time to complete, design and score.

- **Writing the Performance Task**

- The structure of a performance task usually contains the following:
 - Hook/motivator
 - Second person “you have been asked...”
 - An umbrella task
 - The audience to whom the class will present
 - The due date for the final performance

The chief meteorologist for the local news is on vacation for one month. He needs a substitute and has heard about your expertise in weather. He has asked us to present the weather on the 5:00 pm news broadcast in his absence. For the program, you will need to (1) collect data from the outdoor weather station including wind speed and direction, (2) use Excel to create a daily weather graph/chart using appropriate symbols. Be prepared to go “live” with your results on Friday May 4th.

- **Defining Teaching Rubrics**

- **Rubric** – a scoring guide designed to provide *constructive feedback* to students by helping them think more clearly about the *characteristics of quality work*.
- **Assumptions Guiding the Development and Use of Rubrics**
 - Rubrics *define the expectations* for a learning task and *assign values* to each level of quality.
 - Rubrics specify *categories of significance* in achieving quality.
 - Rubrics contain *specific categories* for the criteria that are required.
 - In order for a rubric to be valid, it has to be *correlated to standards*. Vocabulary from standards and benchmarks should be embedded in the descriptors.
 - The most effective rubrics help students explore *qualitative differences* in their work, rather than quantitative differences.
 - Teachers should use rubrics as *advance organizers* for their teaching.

- Rubrics should help students internalize the criteria for excellence and become *critical self-assessors* of their own work.

○ **Holistic Rubrics**

- **Holistic rubric** – The product or performance is *evaluated as a whole and is given a single score*.
- One performance expectation description at each numerical level on the rubric.
- Evaluator makes a *single overall judgment* about a student’s response by considering all of the rubric’s evaluative criteria.

○ **Advantages/Disadvantages**

- Holistic scoring rubrics are quicker to write and easier to use.
- Holistic scoring rubrics fail to communicate the shortcomings in a student’s response.

○ **Creating Holistic Scoring Rubrics**

- Holistic rubrics tend to follow a general pattern. Once the pattern is understood, it is easy to create a holistic rubric.
- Topics for rubrics generally come in two basic types:
 - Information-based, or
 - Process or skill based

| Generic Rubric for Information -Based Topics | Topic Specific Rubric for Precipitation |
|---|--|
| 4 The student has a complete and detailed understanding of the information important to the topic. | 4 The student has a complete and detailed understanding of the information important to the topic of precipitation (particularly the relationship between temperature and precipitation). |
| 3 The student has a complete understanding of the information important to the topic but not in great detail. | 3 The student has a complete but not detailed understanding of the information important to the topic of precipitation (particularly the relationship between temperature and precipitation). There are no misconceptions in the student’s knowledge. |
| 2 The student has an incomplete understanding of the topic and/or misconceptions about some of the information. However, the student maintains a basic understanding of the topic. | 2 The student has an incomplete understanding of the information important to the topic of precipitation (particularly the relationship between temperature and precipitation) or has some misconceptions about the information. However, the student still has a basic understanding of the topic. |

| | |
|---|--|
| 1 The student's understanding of the topic is so incomplete or has so many misconceptions that the student cannot be said to understand the topic. | 1 The student's understanding of the topic of precipitation (particularly the relationship between temperature and precipitation) is so incomplete and/or there are so many misconceptions that the student does not possess even a basic understanding of the topic. |
| 0 – No judgment can be made about the student's understanding of the topic. | 0 – No judgment can be made about the student's understanding of this topic. |

| Generic Rubric for Processes or Skills | Topic-Specific Rubric for Reading Tables |
|---|--|
| 4 The student can perform the skill or process important to the topic with no significant errors and with fluency. Additionally, the student understands the key features of the skill or process. | 4 The student can interpret tables without making significant errors. Additionally, the student performs the process with fluency and understands key features of tables. |
| 3 The student can perform the skill or process important to the topic without making significant errors. | 3 The student interprets tables without making significant errors. |
| 2 The student makes some significant errors when performing the skill or process important to the topic but still accomplished a rough approximation of the skill or process. | 2 The student makes some significant errors when interpreting the tables but still accomplishes a basic approximation of the process. |
| 1 The student makes so many errors in performing the skill or process important to the topic that he or she cannot actually perform the skill or process. | 1 The student makes so many errors when interpreting tables that he or she is not capable of reading tables. |
| 0 -No judgment can be made about the student's ability to perform the skill or process. | 0 -No judgment can be made about the student's ability to perform the skill or process. |

○ **Advantages/Disadvantages**

- Analytical rubrics have the potential to pinpoint specific gaps or deficiencies. They target areas of weakness and help teachers and students focus on the specific criteria they need to master in order to meet or exceed standards.
- Analytical rubrics are challenging to write and often take substantial amounts of time to develop.

○ **Creating Analytical Rubrics**

- **Headings**
 - Title of item being assessed (oral Presentation Rubric).
 - Place for student's name, period, course, or grade level.
 - Place for date of assessment.

- **Scoring Levels**
 - Four levels ranging from one to four.
 - Zero is understood for no evidence or effort.
 - The highest score of four sets clear expectations of what students must do to exceed standards.
- **Descriptors**
 - The descriptors are concise and specific.
 - The descriptors use the vocabulary from standards and benchmarks.
 - Some criteria can be weighted.
- **Format**
 - Tally each criterion score to arrive at a final score.
 - Provide a scale to convert the rubric score to a grade.
- **Teacher Observation**
 - Teacher observation is a highly effective means of assessing:
 - process-oriented topics (drafting a letter, reading a passage);
 - non achievement factors (effort, behavior, etc...).
 - This form of assessment can be broken into observation checklists and structured interviews.
- **Observation Checklist**
 - Observation checklists are a strategy used to monitor specific skills, behaviors or dispositions of individual students or all of the students in a class
 - Observation checklists are also record keeping devices for teachers to use to keep track of who has mastered a targeted skill and who still requires additional help.
- **Effective Observation Checklists**
 - Include the following elements:
 - Space for the student(s) names(s).
 - Space for a limited number of targeted areas.
 - A code or rating system to determine to what degree the student has or has not demonstrated the skill.
 - A space for comments or anecdotal notes.
 - A space for dating the occurrences.
- **Targeted Areas**

- One of the first steps in creating an observation checklist is to develop specific indicators that describe the skills, actions, or behaviors that are expected in terms of criterion.
 - Students need concrete examples.
 - Being more persistent vs. tries several approaches, brainstorms alternative solutions, etc...
- **Using Rubrics to Score Observation Data**
- Observational Data is highly amenable to scoring via rubrics.
 - Teacher observes a student engaged in some behavior, makes a judgment about that behavior, and then assigns a rubric score based on that judgment.

| |
|------------------------|
| Oral Reading Checklist |
|------------------------|

Date: _____

Class: _____

Rating Key:

+ = Most of the time

/ = some of the time

0 = Not yet

| Student Name | Participation | Assignments | Expression | Fluency | Comments |
|--------------|---------------|-------------|------------|---------|----------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| |
|--------------------|
| Behavior Checklist |
|--------------------|

Week of: _____

Class: _____

| Student's Name | Working in Groups | Following rules | Comments |
|----------------|-------------------|-----------------|----------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Working in Groups

- 4 The student works toward the attainment of group goals without being asked.
- 3 The student works toward the attainment of group goals when asked or cued.
- 2 The student works toward the attainment of group goals only when required to do so or when the request involves strong urging or even some explicit or implicit threat.
- 1 The student refuses to work toward the attainment of group goals

Following Rules

- 4 The student follows classroom rules and procedures with out being reminded or cued.
- 3 The student follows classroom rules and procedures when reminded or cued.
- 2 The student follows classroom rules and procedures only when required to do so or when the request involves strong urging or even implicit or explicit threat.
- 1 The student refuses to follow classroom rules and procedure.

Effort Checklist

Week of: _____

Class: _____

| Student's Name | Working in Groups | Assignments | Comments |
|----------------|-------------------|-------------|----------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Participation

- 4 The student participates in classroom activities and discussions without being asked.
- 3 The student participates in classroom activities and discussions when asked.
- 2 The student participates in classroom activities and discussions only when required to do so or when the request involves some form of explicit or implicit threat.
- 1 The student refuses to engage in classroom activities and discussions.

Assignments

- 4 The student is punctual or early turning in assignments and goes beyond the stated requirements relative neatness and adherence to conventions.
- 3 The student is punctual in turning in assignments and meets the stated requirements relative to neatness and adherence conventions.
- 2 The student is not punctual in turning in assignments or does not meet the stated requirements relative to neatness and adherence conventions.

- 1 The student is not punctual in turning assignments or does not meet the stated requirements relative to neatness and adherence to conventions.
- **Interviews and Conferences**
 - Intended to probe the student's understanding of a topic in ways not easily accomplished with other types of assessments.
 - This form of interaction is potentially the most valid type of assessment a teacher can use.
 - **Support for Interviews and Conferences**
 - Study of 44 elementary and 31 junior high school students conducted by Valencia and colleagues (1991).
 - Purpose was to determine their knowledge on several selected topics.
 - Assesses each students knowledge in four ways:
 - Structured interview plan
 - Fill-in-the blank test
 - Short answer test
 - Essay test
 - Interviews provided more information than the other measures.
 - Three test formats addressed only 34% of what students demonstrated they knew within the interviews.
 - On average 66% of the typically relevant ideas students gave during interviews were not tested on any of the other measures.
 - **Steps for Using Interviews and conferences**
 - Decide on the questions you will ask and the method you will use for rating responses.
 - Decide on a block of time for interviews and assign students time slots.
 - Plan an activity for the remainder of the class.
 - Give clear expectations for the behavior of the rest of the class.
 - Tell students what to bring to the interview or conference.

The Book Review Conference

Title of Book: _____

Date: _____ Class: _____

Rating Key:

4 = Strong evidence of understanding this story element.

3 = Acceptable evidence of understanding this story element.

2 = Limited evidence of understanding this story element.

1 = No evidence of understanding this story element.

| Name | Plot | Character | Setting | Theme | Symbols | Points |
|------|------|-----------|---------|-------|---------|--------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

○ **Self-Assessment**

- Although the most underused form of classroom assessment, student self-assessment has the most flexibility and power as a combined assessment and learning tool.
- Self-assessment is central to the development of higher-order metacognitive skills and also leads to the identification of personal learning goals.

○ **Uses of Self-Assessment**

- Teachers can use student self-assessment in the following ways:
 - Individual assessment of performance on a given assignment (process or product).
 - Assessment of overall student performance for a given time period.

○ **Self-Assessment of Performance on Individual Assignments**

- Students rate themselves before the assessment is scored by the teacher.
- This can be done with a checklist, a rubric or through a series of questions.

Example Self-Assessment Prompts

Name _____

Teacher _____ Date _____

HOW Should Your Papers Look?

| | | | |
|--|--------|----|--------|
| H = Heading | | | |
| 1) First and last name | 1. yes | no | yes no |
| 2) Date | 2. yes | no | yes no |
| 3) Subject | 3. yes | no | yes no |
| 4) Page number if needed | 4. yes | no | yes no |
| O = Organized | | | |
| 1) On the front side of the paper | 1. yes | no | yes no |
| 2) Left margin | 2. yes | no | yes no |
| 3) Right margin | 3. yes | no | yes no |
| 4) At least one blank line at the top | 4. yes | no | yes no |
| 5) At least one blank line at the bottom | 5. yes | no | yes no |
| 6) Good spacing | 6. yes | no | yes no |
| W = Written neatly | | | |
| 1) Letters and numbers on the lines | 1. yes | no | yes no |
| 2) Letters and numbers written neatly | 2. yes | no | yes no |
| 3) Neat erasing or crossing out | 3. yes | no | yes no |

Example Self-Assessment Prompts

Name: _____ Date: _____

Assignment: _____

1) What were you expected to do? Be specific

2) In this assignment, what did you do well? Explain

3) If you had to do this assignment over again, what would you do differently? Explain

4) What help, if any, do you need from me? Be specific

○ **The Validity of Student Self-Assessment**

- Parents and educators strongly question the validity of student self-assessment.
- The assumption is that if given the chance, students will provide inflated assessment of their understanding and skill.
- This fear is not supported by research.
- However, it is important to note that student self-assessment is most effective when students are aware of the specific elements on which they are to assess themselves and the specific criteria they are to use in making their assessments.

○ **Defining Portfolios**

- A portfolio is a collection of student work gathered for a particular purpose that exhibits the student's efforts, progress or achievement in one or more areas.
- The organization and contents of a portfolio will differ according to the purpose and type of the portfolio.
- A portfolio may be used to:
 - Document meeting standards.
 - Connect subject areas.
 - Chronicle growth and development over extended time periods.
 - Promote self-assessment and reflection.

○ **The Basic Process**

- Three Basic Steps
 - Collect items throughout the unit, marking period, or year in a *process-portfolio*.

- Analyze the items in the process-folio and select certain items for the *best-works* or *showcase portfolio*.
 - *Reflect* on the items selected.
- The teacher sets the parameters for the choice of items, but within those parameters the student must make the selection of items.

INSTRUCTIONAL PLANNING

Unit Planning

- The starting point for the design of classroom curriculum in Alexandria Township is the approved Board of Education Curriculum Guides.
- The indicators listed in the district's curriculum guides shall be initially translated into instruction through development of units of instruction.
- Whenever possible, these instructional units shall be co-planned by teachers instructing the same grade level or subject area. This will improve the consistency of the instruction throughout the school district.

Elements of the Instructional Unit

- **Core Concept(s):** A concept or core idea in a Core Content standard that is a critical for student understanding and has value beyond the classroom; a "linchpin" idea that is essential for understanding. Core Concept(s) transcend specific grade levels. (Provided by district)
- **Critical Understanding(s):** These are the items "worth" understanding from among the wide range of standards and indicators. Critical understandings have lasting value because they are applicable to new situations within or beyond the content area. (Provided by district)
- **Focus Questions(s):** Questions designed to tap into the big ideas of the subject. They are broad in scope, raise other important questions and have no "right answer." These questions transcend specific grade levels. (Provided by district)
- **District Progress Indicator(s).** The relevant indicators for that unit of study that have been listed in the district curriculum guides.
- **Core Unit Vocabulary Terms:** The relevant vocabulary terms from the district list that will be taught through direct instruction as part of the curriculum unit.
- **Technology Integration:** How, if any, way in which technology shall be integrated into the instructional activities listed for the curriculum unit.
- **Instructional Activities:** A sequenced list of the instructional activities that will be used to achieve appropriate understanding of the district progress indicators.
- **Task Description:** A description of the summative activity students will engage in so that the teacher can gather performance data and judge the quality of the performance.
- **Assessments:** A description of the formative and summative assessments the teacher will use to determine student progress on and off learning.

Unit Plan

| | | | |
|------------------------------------|--|--|--|
| Teacher: | | Subject Area: | |
| Grade Level: | | Unit Title: | |
| State Standard(s): | | | |
| Core Concept(s): | | Critical Understanding(s): | |
| Focus question(s): | | District Progress Indicator(s): | |
| Core Unit Vocabulary Terms: | | Technology Integration: | |
| Instructional Activities: | | | |
| Task Description: | | Assessment Methods: | |

Daily Planning

Instructional Framework for Daily Lessons

- Daily lesson planning is the translation of curriculum unit plans into classroom lessons. The components of lesson plans will vary depending upon the circumstances of the situation.
- It is expected that those designing lessons will consider the following elements as they think through their daily planning:
 - **Anticipatory Set:** A mental set that causes students to focus on what will be learned. It may also give practice in helping students achieve the learning and yield diagnostic data for the teacher.
 - **Objective and Purpose:** Not only do students learn more effectively when they know what they are supposed to be learning and why that learning is important to them, but teachers teach more effectively when they have the same information.
 - **Input:** Students must acquire new information about the knowledge, process, or skill they are to achieve. To design the input phase of the lesson so that a successful outcome becomes predictable, the teacher must have analyzed the final objective to identify knowledge and skills that need to be acquired.
 - **Modeling:** “Seeing” what is meant is an important adjunct to learning. To avoid stifling creativity, showing several examples of the process or products that students are expected to acquire or produce is helpful.
 - **Checking for Understanding:** Before students are expected to do something, the teacher should determine that they understand what they are supposed to do and that they have the minimum skills required.
 - **Guided Practice:** Students practice their new knowledge or skill under direct teacher supervision. New learning is like wet cement; it is easily damaged. An error at the beginning of learning can easily “set” so that correcting it later is harder than correcting it immediately.
 - **Closure:** An opportunity for the learner to mentally summarize what they have learned. Closure can be overt or covert, but must be done by the learner.
 - **Independent Practice:** Independent practice is assigned only after the teacher is reasonably sure that students will not make serious errors. After an initial lesson, students frequently are not ready to practice independently, and the teacher has committed a pedagogical error if unsupervised practice is expected.

GRADING AND COMMUNICATION

ASSESSMENT AND COMMUNICATION

The Nature of the Communication

- When the purpose of assessment is primarily formative, the communication should be descriptive. In other words, students need to know what they did well and what they may need to do differently to improve their performance. Summative assessment information, informing students and their parents about how well a learning goal has been achieved, is often communicated using symbols (letters or numbers). Quality feedback is essential if students are to know how to improve their performance.
- During practice, assessment takes the form of descriptive feedback and guides the student toward performance that increasingly resembles the standards set. Feedback during practice is not “scored.” The student’s opportunity to demonstrate his or her personal best comes at or toward the end of a unit when students are required to complete summative tasks such as projects, written pieces, or performances. It is quite appropriate to “score” student achievement on these tasks and to summarize these scores using symbols or comments on a report card.

The Timing of Communication

- The timing of communication about assessment can enhance its effectiveness. During the learning process, feedback about performance must be given promptly and frequently so the student has an opportunity to make use of it. In addition, students need frequent opportunities to reflect on their learning. In other words, communication related to assessment *for* learning and *as* learning must be responsive and dynamic. When the purpose of the communication is information about achievement up to a point in time (assessment *of* learning), schools must communicate to the student and parents with enough time to allow for decisions to be made about what needs to happen during the next instructional cycle—the next term, semester, or year.
- Effective communication about assessment is at least a two-way interactive process, and, ideally, three-way. For communication about assessment to improve learning, the teacher and student must be partners in the learning process. Communication involves dialogue between teacher and student, not merely the teacher telling the student what she did correctly and incorrectly. Three-way communication brings the parent into the learning equation and can lead to even greater improvement. Involving parents is especially helpful when students are experiencing difficulty. In those instances, teachers can keep parents informed about their child’s strengths, areas for improvement, and ways in which they might provide support at home on an ongoing basis. The conversation does not have to wait until the report card has gone home.

COMMUNICATION TO IMPROVE STUDENT LEARNING

Communicating a Full Picture of Student Learning

- Learning is a complex endeavor. Students' motivation and belief in their abilities can make a huge difference in how well and how much they learn and improve. Research has shown that keeping students at the center of the learning process increases achievement and fosters their capacity for further learning. When students develop greater awareness of what they know and how they learn, they are better able to respond to new learning challenges.
- Students' motivation and future learning are greatly affected by what we communicate to them about their learning, how we do it, and when we do it. Ideally, communication about student learning
 - is timely, ongoing, and embedded in the learning process
 - describes what students are able to do, and provides direction for next steps
 - encourages students to set and revise learning goals
 - helps teachers plan
 - assists parents in supporting the student at home.

Communicating with Students to Improve their Learning

- For students to be able to deepen their understanding and improve the quality of the work they produce to reflect that understanding, they rely mainly on information from their teacher. Test scores and letter grades have traditionally played a dominant role in communication about assessment, but these symbols in themselves do not provide students with the feedback and guidance they need to learn. When students receive specific, descriptive feedback, they know what it is they need to do differently to improve their work.

Communicating Assessment for and as Learning Information

- Assessment is not something that teachers do to students; it is a process of collaborative communication in which information about learning flows between teacher and student. This two-way exchange of information is at the heart of assessment *for* and *as* learning. If assessment *for* and assessment *as* learning are to improve the quality of students' work, then students must be involved in their own assessment.
- Assessment *for* learning and assessment *as* learning both occur constantly throughout the teaching/learning process, often as part of the same assessment opportunity. They are

powerful because the assessment is frequent, dynamic, and responsive to student needs. Assessment *for* learning helps the teacher adjust instruction and provides information to students to help them improve the quality of their work. This requires two-way communication between the teacher and the learner.

- Assessment *as* learning places the student at the center of the assessment process and becomes a routine component of classroom practice that helps students view their performance objectively and make adjustments in order to learn more and improve the quality of their work. Assessment *as* learning occurs as students reflect upon their strengths and needs, set goals for improvement, and identify strategies to accomplish these goals.

Communicating Assessment of Learning Information

- Assessment *of* learning is concerned with examining and summarizing the critical sample of evidence of student work that will reflect achievement of the learning outcomes in a given grade and subject.
- Communication about assessment *of* learning involves several steps:
 - Decide upon the evidence that will comprise the “assessment *of* learning” sample. Ideally, teachers work as a grade, course, or subject team to do this.
 - Communicate to students and parents what evidence will be required.
- For each assessment task, convey to students—and ideally parents—what criteria will be used to judge the quality of the student’s work.
- Once the students complete the tasks, inform them about the quality of their work using points, rubric levels, or comments.
- Provide opportunities for students and parents to discuss the way the teacher determined the score.
- Communication about assessments *of* learning typically occurs at or toward the end of a significant period of learning, such as a unit or a term, but can occur throughout the learning process. These summative assessments inform and support future teaching and learning.

Strategies for Communicating with Students to Improve their Learning

- For assessment to be most effective in improving students’ learning, it needs to occur throughout the teaching/learning process. There are numerous research-proven strategies that facilitate the communication of assessment information with students while they learn, as well as effective strategies for communicating and reflecting on summative information. A sampling of these follows:
 - Teacher/Student Conferences - Finding time for regular teacher/student conferences can be challenging, but is well worth the effort. Some teachers set

aside certain periods or portions of class time to conference with five or six students per cycle in order to provide feedback and guidance about their work. Some teachers manage to provide regular feedback in less formal ways, using an “over the shoulder” approach where they circulate through the class as students work and offer feedback and direction as required. Other teachers offer opportunities during or after class to discuss performance on summative assessments, focusing on providing advice for improvement. Conferences do not need to be lengthy, but if they are clearly focused on where the student is relative to the learning outcomes, as well as what the next steps could be, they can go a long way to improving student achievement.

- Self- and Peer Assessment
 - Students require frequent and specific descriptive feedback to improve their work. It is not realistic to think that teachers can provide constant feedback for all students. Self and peer assessment increase the opportunities for students to receive descriptive feedback on their work, and have a number of added benefits:
 - Students better understand the standards for quality work when they apply these standards themselves.
 - They learn to be less dependent on the teacher for feedback and become better able to independently monitor the quality of their own work.
 - They develop metacognitive skills and become more able to adjust what they are doing to improve the quality of their work.
 - They broaden their own learning when they see how their peers approach a given task.
 - They practice and hone their communication and social skills when they are required to provide useful feedback to others.

- A number of elements need to be in place for self- and peer assessment to be effective:
 - Students require a clear picture of the learning outcomes and the criteria for quality work. Students can only assess their work or the work of their peers if the assessment tools, such as rubrics or checklists, are written clearly and are easy to use.
 - The assessment should focus on one aspect of quality at a time. For example, if a lesson has focused on writing effective descriptive paragraphs, then the assessment of the piece should focus only on the quality of the description, not on spelling, subject-verb agreement, et cetera.
 - Students need to have self- and peer assessment modeled for them in order to develop their skills. For instance, the teacher might think aloud about a work sample to demonstrate how to critique and revise an aspect of the work. Or a peer conference could be modeled that illustrates respectful ways to offer feedback.

- Students require frequent opportunities to practice and refine their self- and peer assessment skills. Scheduling regular opportunities ensures that this essential part of the teaching-learning cycle does not get sidetracked by other priorities.
 - Students should not be required to assign marks, either to their own work or to the work of their peers. Marking is part of evaluation (judgment) of student work and it is the teacher’s responsibility.
- *How often should students be involved in self- and peer assessment?*
 - The answer to this question is more a matter of purpose than of frequency. Decisions about who should assess a given task—teacher, student self-assessors, peers, or a combination of these people—can only be made once the teacher is clear on the purpose of the assessment. To illustrate, there are certain points in the teaching/learning process when peer and self-assessment are most effective. For example:
 - Teachers should include peer assessment as a routine practice when students are working on early drafts of written material. Peer assessment can improve the quality of work before it is viewed by the teacher as long as the students have been taught what to look for in their partner’s work, have an assessment tool such as a checklist or rubric to focus their comments, and are required only to provide anecdotal comments and not scores.
 - Teachers should include self-assessment as a routine practice in subjects like mathematics, where students typically complete practice questions following the teaching of a new concept or procedure. Students might be instructed to check their answers against the answer key to determine whether they’ve “got it” or whether they need to review the new learning and complete more practice work.
 - Portfolios
 - The portfolio is an excellent vehicle for communicating with students about their learning. It is also one of the most effective ways to make assessment a collaborative process. A portfolio is much more than a container for storing student work. When implemented effectively, the portfolio becomes a window into learning that enables teachers and parents to “see inside” the learning process. As such, the portfolio provides a focus for student-teacher and parent-teacher conferencing.
 - A major purpose for using portfolios is to foster student metacognition—that is, to teach students how to monitor, reflect on, and then improve the quality of their own work, and, in the process, to become less dependent on the teacher’s assessment of their work. Effective portfolio programs integrate learning with assessment by providing a regular time for students to confer with their teacher about specific work samples. By having

students attach a Reflection Strip to each piece they include in the portfolio, they think critically and analytically about their work and thereby improve their metacognitive skills.

- The portfolio's greatest strength is that it is an ever-changing window into each student's learning. For this reason, it provides a focus for providing feedback to students about what they are doing well and what they need to improve.
- Portfolios can serve multiple assessment purposes.
 - Information from assessments for learning conducted near the beginning of the year and/or unit can be included. It helps to inform the student and the teacher about the knowledge and skills the student brings to a topic or learning task. By including information from initial assessments in a student's portfolio, the teacher and the student have baseline information from which to measure growth.
 - Assessment as learning can occur through conferencing between the student and teacher. During a conference, the student shares specific items in the portfolio, why they were selected for inclusion, and what they show about his or her learning. This reflection leads to formulating goals for improvement.
 - Assessment data from students' portfolios may also be used in the assessment *of* learning. The portfolio may include pieces of work that have been identified as essential evidence of learning. If this is the case, then the marks assigned to these polished pieces of work could comprise a significant part of the final report card grade.
- **Feedback on Summative Assessments**
 - Students need information about their achievement on an ongoing basis. One of the most valuable but underused and undervalued sources are feedback on summative assessments, especially if students get information about their performance on learning outcomes and not just an overall score. Rubrics often break out the score into learning outcomes, but scores on tests can also be linked to learning outcomes either in addition to or in place of an overall mark. For example, on a Grade 5 math test, students would not simply receive an overall score. They would receive a breakdown showing scores on estimation, mental math, multiplication, and division. This enables students (and teachers) to develop a sense of relative strength and areas for improvement, which makes it possible for students (and teachers) to make appropriate adjustments in future learning opportunities.
- **Grading Profiles**

- Students also need to have information about the trends and patterns in their performance over time, so teachers should provide (and/or encourage students to keep) records of their scores. As indicated above, this information should be provided by learning outcome and not by overall score for each summative assessment. Teachers should postpone putting a summary grade on these records until they have sufficient information to make good judgments and until student patterns of performance have been clearly established. The valuable information is provided by the profile, not by the summary symbol.

Communicating with Parents about Student Learning

- When parents are well informed about learning outcomes and how their child is progressing in relation to them, they can be much more effective in supporting their child's learning. Schools communicate information about student learning in many ways.
- There has been a tendency to rely on report cards and grades as the main communication tool. They are useful in communicating the students' achievement status at certain times of the year to the students themselves, parents, teachers, administrators, and others who have the need and right to know about the student's achievement (e.g., next-grade teachers, other schools and educational organizations, employers, and those who award scholarships). However, they are just one piece of an overall communication system. It is important that Alexandria Public Schools develop communication strategies that provide much more information than what is included in a traditional report card.
- The communication system needs to be comprehensive, coherent, and feasible. All the pieces need to fit together so that detailed information about the student as a learner is provided in appropriate ways and at appropriate times. For example, the school can communicate in a formal but limited way about six weeks into the school year, followed by a more comprehensive report card at about 12 weeks. For instance, some schools ask teachers to have one telephone contact with each student's parent in the first two months. Some send home an early "progress report" before a final term report on achievement. Some schools hold student-teacher-parent conferences in mid-October, followed by report cards in December. Whatever options are used, the school's communication system should fit its community and be sustainable. It should not overburden the "message receivers" or the "message senders."

Tools for Communicating Assessment Information to Parents

- Communicating assessment *of* learning information to parents provides them with ongoing information about the achievement of their child. Traditionally, this communication has come in the form of grades and report cards; however, there are many other tools available to teachers. The key principle is that no grade or report card should ever be a surprise to a student or parent. Using a variety of communication tools can ensure this does not happen.

- Some possible tools include:
 - **Course Outline and Grading Plan**
 - In the first week of each year or course, teachers should provide parents with a page or two that describes the assessment and grading plan.
 - **School Web Pages**
 - School web pages have great potential for providing easily accessible information to parents about curriculum or course outlines, the assessment plan, required assignments and due dates, scoring rubrics, information on how grades are determined, and so on. These pages need to be kept reasonably up-to-date.
 - **Scored Summative Assessments**
 - Just as scored summative assessments provide valuable information to students, they can also be instructive for parents if the feedback provides information about achievement of learning outcomes and not just overall marks.
 - **Grading Profiles**
 - A printout of marks earned to date can be a valuable source of information for parents. They can give an indication of some preliminary results early in the term, and give parents the chance to help their child before the grades become formalized on a report card. However, it should be clear that these marks are early results and not the complete picture. When the summaries are organized by learning outcome, they can provide an even more specific profile of the student's emerging achievement.
 - **Grades**
 - Grades provide an overall summary of student achievement. Traditionally, the summary has been in the form of a single grade for each subject, but as the focus of curriculum is moving to more clearly defining the learning outcomes, grades can provide a profile of student achievement. Instead of a single grade for, say, mathematics, reports can communicate grades for each general learning outcome or strand. The level of specificity of this form of grading may vary according to the subject, the teacher, and the grade level.
 - **Report Cards**
 - Well designed report cards issued several times each school year provide clear summary information about student achievement and behaviors. They are a major part of each school's communication system. The purpose for each report card must be clear. For example, the report should clearly indicate whether it represents an interim indication of progress to date, or a final judgment about level of achievement and credit status.

- **Portfolios**
 - Student achievement can be effectively communicated by having students select work samples that illustrate growth or achievement and compile them in a portfolio. Electronic portfolio systems allow students and teachers to electronically store and manage work samples, reflections, and goal setting at school, and have the added benefit of being accessible by students and parents at home.

- **Continua**
 - Developmental continua describe stages of student learning. They list the processes, strategies, and attitudes that students demonstrate at key points. These continua can be used to show parents how their child has grown since a previous meeting and how the child is progressing, as well as to illustrate the child's current learning stage. Some educators find them to be an effective means of communicating student achievement because they are phrased in positive terms, describing what students can do as opposed to ways they might be deficient. Using the descriptions on a continuum, the teacher can blend varied information, such as that obtained from observation of learning behaviors, student self evaluations, as well as analysis of work samples, in order to make an informed judgment about student achievement.

- **Conferencing with Teacher(s)/Student/Parents**
 - Communication about learning can occur effectively in parent-teacher and student involved and student-led conferences. The more student involvement there is, the more effectively the communication can support learning. The amount of student involvement can vary from very limited to considerable, depending on the comfort level of the participants and the preparation of the students. Schools should organize conferences around samples of student work that show what learning has taken place rather than talking in general about summary scores.

GRADING AND REPORTING PRACTICES

- The purpose of grades and report cards is to provide high-quality information about student learning to students and parents in a form they can readily understand and use.

- Grades
 - Grades provide information about student achievement in a summary format and are a key part of the communication system. To be of high quality, grades must meet four standards: they must be meaningful, consistent, accurate, and supportive of learning.

 - Meaningful

- Grades should meaningfully represent the achievement of learning outcomes. A single summary symbol may not provide a clear enough description of achievement. Organizing assessment information by learning outcome enables teachers to produce a profile of strengths and areas for improvement. When grades are meaningfully organized, teachers can determine entry points for instruction when they start teaching students, and can adjust instruction during the course or year. In addition, organizing by learning outcome helps teachers assess whether they have sufficient evidence about the achievement of all outcomes to determine grades, course credit, and future placement.
 - Consistent
 - Grades also need to be consistent—that is, the same performance would result in the same grade from different teachers of the same subject or grade level. To achieve consistency, educators need to ensure they are working from a common understanding of learning outcomes and performance standards.
 - Accurate
 - Grades should be unencumbered by other factors and should be as pure a measure of achievement as possible.
 - Supportive of Learning
 - Grading is most supportive of learning when students are involved in the entire learning process. When students know what the goal and criteria for success are, when they know which assessments are part of the instructional process and which assessments will be used as summative indicators of achievement for grading purposes, they are more likely to see the purpose of assessment as learning and not as accumulating marks. When grades are used to reward and punish student behavior, they become distorted and their use in supporting real learning is diminished.
 - When grades are meaningful, consistent, accurate, and supportive of learning, they provide a worthwhile source of information that students, teachers, and parents can use to make good decisions. When grades fail to meet even one of those conditions, poor decisions may result.
- Grading Guidelines
 - Teachers need to follow a number of guidelines to arrive at grades that are meaningful, consistent, accurate, and supportive of learning.
 - **Relate grading procedures to the learning outcomes.**
 - *Use learning outcomes (not assessment methods) as the basis to record evidence and determine grades.*

- The basis for grades has traditionally been assessment methods, and the categories in teachers' grade books have been tests, projects, and assignments. However, this tells the teacher more about what kind of assignments or tests the student is good at than what aspects of the curriculum the student best understands.
- For grades to be a meaningful representation of student achievement, the basis for grades must be derived from the learning outcomes. Teachers need to decide the level of specificity they will use to collect and report evidence of student achievement. This often involves grouping learning outcomes into clusters.
- When more than one learning outcome is being assessed, a score is assigned to each and there is no overall or total score. This has obvious implications for the planning of assessment, as each assessment must be planned by learning goal.
 - **Use criterion-referenced performance standards as reference points to determine grades.**
 - *The meaning of grades (letters or numbers) should come from clear descriptions of performance standards. "If they hit the goal they get the grade!" (i.e., NO bell curve!)*
- With clearly identified performance standards, teachers can make more consistent judgments about student performance. We have traditionally linked symbols to percentages with one- or two-word descriptors for each level of performance (such as A = 90–100%: Excellent, B = 80–89%: Good, C = 70–79%: Satisfactory, D = 60–69%: Minimally Acceptable, and F = 0–59%: Unacceptable/Failing). The problem with grades expressed as percentages is that it implies we can consistently identify 100 levels of performance. Obviously, performance levels cannot be so precisely and reliably determined. To have meaningful performance standards that students and parents can understand and that teachers will use consistently, a limited number of levels must be clearly described. In a pure learning-outcomes-based system, there would be only two levels: meeting expectations and not meeting expectations. There are, however, good reasons to acknowledge and encourage excellence, and to distinguish between achievement that is close or not close to competent, so it is easy to expand to at least four levels. There is no right or magic number of levels, but if there were, it would be a lot closer to 2 than to 100.
 - **Sample student performance—don't include all scores in grades. Use formative assessment as an opportunity to provide feedback to students.**
 - *Use a variety of summative assessments to determine grades.*
- Students need to be clear about the purpose for each assessment and how the results will be used. In particular, it is critical that there be a clear distinction

between formative assessment (assessment *for* and *as* learning) and summative assessment (assessment *of* learning).

- Formative assessment should be used to provide feedback to students and teachers so they can make appropriate adjustments to their learning and teaching. There should be an emphasis on words (e.g., descriptions, rubrics, checklists), not numbers, and these assessments should not be a part of the grade calculation.
- Summative assessment should be the primary source of information for determining grades. Teachers should inform students which assessments are summative, and provide varied opportunities to demonstrate what they know, understand, and can do.
- While it is not legitimate to include data from formative assessments when determining grades, such evidence can help to confirm teachers' summative judgments. In cases where a student has had unusual difficulty with a summative assessment task, teachers may review recent formative evidence from the student's daily work and choose to offer a re-assessment opportunity or to use their professional judgment to adjust the summary grade.
 - **“Grade in pencil”—keep records so they can be updated easily. *Use the most consistent level of achievement with special consideration for more recent evidence of achievement. Provide several and various assessment opportunities.***
- Learning is a process that usually results in the improvement of our knowledge, understanding, and skill over time. This needs to be acknowledged in the grading process by monitoring consistency in student achievement. When that consistency is lacking, there should be an emphasis on the more recent evidence. This means that new evidence must replace (and not simply be added to) old evidence to determine grades.
- This guideline means that students need several opportunities to demonstrate their understanding of each learning outcome. This can be accomplished by overlapping assessments or by providing reassessment opportunities. Reassessment, if offered, must be available to all students, but they should understand it is a privilege and not a right. Privileges have to be earned, so to earn a reassessment opportunity students must show that they have engaged in learning activities that increase their likelihood of success.
 - **“Crunch” numbers carefully, if at all. *Avoid using the mean; consider using median or mode. Think “body of evidence” and professional judgment; determine grades, don’t just calculate them.***
- Grading is often treated as a numerical, mechanical exercise based on taking all the scores for each student and calculating the average, or mean. The problem

- The appropriateness of the various measures of central tendency depends on the consistency of the student scores. With very consistent scores, it does not matter which measure is used; with somewhat consistent scores with some outliers, then the median or mode are more appropriate; but with very inconsistent scores, none of the measures of central tendency work. Therefore, in such situations, teachers must use their professional judgment to determine the most appropriate summary grade to represent each student's achievement. This requires careful consideration of the body of evidence provided by the student and what this reveals relative to the performance standards.

Zeros

- One very difficult “number-crunching” issue is the use of zeros. Teachers have most commonly used zeros when students have not submitted the required assessment evidence or for behavioral transgressions such as cheating or plagiarizing. Two problems arise with zeros:
 - Zeros create a mathematical problem in the percentage system, because so many points are designated for failing compared to the number of points for the other levels. Most commonly, the cut point for pass/fail is 50 with 50 percent for the other three or four points on the scale. Therefore, a disproportionate scale exists where a zero has a much greater impact than other levels on the scale.
 - Zeros have a devastating impact on motivation. Using zeros can make it almost impossible for students to recover and be successful.
 - *Alternatives to zeros*
 - In order to address the mathematical problem, several alternatives to the use of zeros exist:
 - One is to use an equal-difference scale instead of a percentage scale. Instead of having multiple percentage points for each level, all assessments would be recorded on a scale with equal difference. A five-level scale would be recorded as 5 4 3 2 1, so in the above example the student might receive five 3s, a 1, and would then only need two 3s and

- A second alternative to zeros is to put in a floor to make the percentage scale an equal-difference scale. For example, if there are 10 points for an A, a B, a C, and a D, then there should be 10 points for an F, so the pass/fail cut would be 60 percent and, instead of a zero, the lowest score recorded would be 50 percent. Getting a score of 50 percent would not mean that the student knows or understands 50 percent of the outcomes. It would simply be a symbolic representation to ensure the math makes sense.
 - The third and best alternative to the use of zeros is to simply leave a blank space in the grade book for missing or tainted evidence. When it is time to determine grades, decide whether there is enough evidence to make the necessary determination of a grade. If there is sufficient evidence, the grade should be determined on the basis of the available evidence. If there is insufficient evidence, then the grade should be recorded as an “I” for “Incomplete” or “Insufficient evidence.” Procedures then need to be developed with timelines and requirements for how “incompletes” can become “completes.”
- Zeros also affect the student’s motivation to work. Sometimes students will willingly take a zero to avoid completing the work if they know that they can still get an average of 50 percent. Consequently, important course outcomes are not addressed. To ensure that important work is completed, several alternative consequences can be used instead of grade consequences. For example:
 - A phone call home to parents
 - Mandatory extra help (study hall) during lunch hours or spare periods until the assignment is complete
 - Temporary suspension from extracurricular activity
 - Withholding the grade until sufficient assignments are complete
 - When students realize that their work must be completed and they cannot “just take a zero,” some schools have found an increase in pass rates and student motivation.
 - Ultimately, accurate grading requires teachers to make a professional judgment about students’ achievement based on a body of evidence that the student has produced. Not all learning can be quantified in numerical terms, and some evidence may be anecdotal. What is essential is that teachers are able to determine whether students have achieved the learning outcomes for the course.
 - **Use quality assessment(s) and properly record evidence of achievement.**
Assessments must meet standards for quality.
 - Accurate and meaningful grades rely on quality assessment. Teachers must ensure that every assessment that is used to determine grades is a quality assessment. Quality assessments have the following five attributes:

- **Clear Targets**

- Teachers must have a clear understanding of both *what* is to be learned (the learning outcomes) and how well students are expected to demonstrate their learning (the performance standards). These need to be communicated in understandable ways to students early in the learning process.

- **Clear Purpose**

- The purpose (*for, as, and of* learning) of every assessment must be clear and must be communicated to students.

- **Appropriate Target-Method Match**

- This involves choosing the “right” assessment for the learning outcome(s) being assessed. For example, when assessing knowledge-level outcomes, selected response methods are both efficient and effective, but to assess skills or the application of knowledge, some method of performance assessment should be used.

- **Appropriate Sampling**

- A critical principle is that decisions should never be made on the basis of one assessment. There must be enough evidence, both in quantity and variety, for teachers to provide the feedback students need and to make the judgments they need to make (i.e., determine grades). Teachers will have sufficient evidence when they are confident that one additional piece of evidence would simply confirm what they already know. The amount of evidence needed depends on the consistency of each student: the more consistent a student is, the less evidence is needed; the more inconsistent, the more evidence is needed. Evidence from a variety of assessment approaches also contributes to quality. One way to do this is to triangulate evidence gathered through observations and conversations with students during the learning process, as well as from work samples and other products of learning.

- **Avoidance of Bias and Distortion**

- A number of variables can cause assessment results to be distorted. There may be concerns about student-specific issues (e.g., low reading skill, physical health, emotional setback), disturbances in the assessment setting (e.g., noise, lighting, temperature), and concerns with the assessment itself (e.g., clarity of wording of directions and questions, time available to complete). Teachers must be conscious of all the factors that can interfere

with quality assessment, and attempt to avoid or mitigate them. If that is not possible, an alternative assessment opportunity should be provided.

- ***Evidence of achievement and behavior must be carefully recorded and maintained.***
 - Teachers must keep records of the information about student achievement and behaviors that are summarized in grades and on report cards. It is not sufficient to make decisions based on memory. It is also helpful to keep, or have students keep, samples of their work in formal or informal portfolios.

- **Discuss and involve students in assessment, including grading, throughout the teaching/learning process.**
 - The following is a list of key indicators of student involvement in the assessment process:
 - Students understand how their grades will be determined (assessment *of* learning). At the beginning of instruction, the teacher should share with students and parents an assessment and grading plan for the year/course. This statement should be age-appropriate, written in student- and parent-friendly language and ideally should be no more than one page in length. All the teachers at each school who are teaching the same grade/course should develop these statements together, and not individually.
 - Teachers provide students with opportunities to have input into the criteria for success. Exemplars also help them to understand the conditions of quality. Students are allowed, at appropriate points, to make some choices in how they demonstrate their learning.
 - Teachers and peers provide specific descriptive feedback that informs self assessment, reflection, and goal setting.
 - Students keep track of their achievement to identify their strengths and areas for improvement.
 - Students discuss their learning in student-involved or student-led conferences.