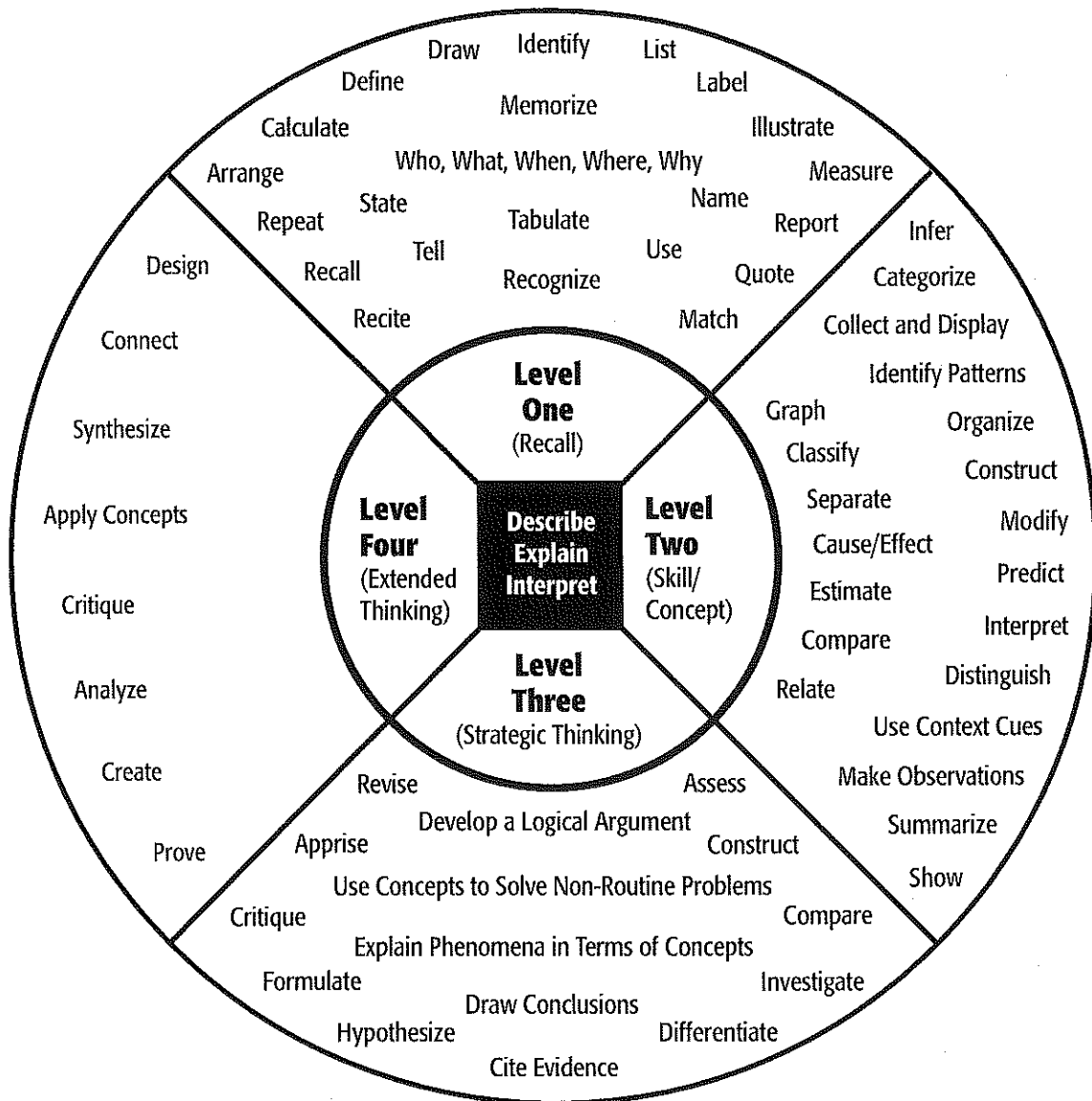


Depth of Knowledge (DOK) Levels



Level One Activities	Level Two Activities	Level Three Activities	Level Four Activities
Recall elements and details of story structure, such as sequence of events, character, plot and setting.	Identify and summarize the major events in a narrative.	Support ideas with details and examples.	Conduct a project that requires specifying a problem, designing and conducting an experiment, analyzing its data, and reporting results/solutions.
Conduct basic mathematical calculations.	Use context cues to identify the meaning of unfamiliar words.	Use voice appropriate to the purpose and audience.	Apply mathematical model to illuminate a problem or situation.
Label locations on a map.	Solve routine multiple-step problems.	Identify research questions and design investigations for a scientific problem.	Analyze and synthesize information from multiple sources.
Represent in words or diagrams a scientific concept or relationship.	Describe the cause/effect of a particular event.	Develop a scientific model for a complex situation.	Describe and illustrate how common themes are found across texts from different cultures.
Perform routine procedures like measuring length or using punctuation marks correctly.	Identify patterns in events or behavior.	Determine the author's purpose and describe how it affects the interpretation of a reading selection.	Design a mathematical model to inform and solve a practical or abstract situation.
Describe the features of a place or people.	Formulate a routine problem given data and conditions.	Apply a concept in other contexts.	
	Organize, represent and interpret data.		

Designing Effective Projects: Thinking Skills Frameworks Marzano's New Taxonomy

Marzano's New Taxonomy

Robert Marzano, respected educational researcher, has proposed what he calls A New Taxonomy of Educational Objectives (2000). Developed to respond to the shortcomings of the widely used Bloom's Taxonomy and the current environment of syllabus guidelines-based instruction, Marzano's model of thinking skills incorporates a wider range of factors that affect how students think and provides a more research-based theory to help teachers improve their students' thinking.

Marzano's New Taxonomy is made up of three systems and the Knowledge Domain, all of which are important for thinking and learning. The three systems are the Self-System, the Metacognitive System, and the Cognitive System. When faced with the option of starting a new task, the Self-System decides whether to continue the current behavior or engage in the new activity; the Metacognitive System sets goals and keeps track of how well they are being achieved; the Cognitive System processes all the necessary information, and the Knowledge Domain provides the content.

The Three Systems and Knowledge

Self-System		
Beliefs About the Importance of Knowledge	Beliefs about Efficacy	Emotions Associated with Knowledge

Metacognitive System			
Specifying Learning Goals	Monitoring the Execution of Knowledge	Monitoring Clarity	Monitoring Accuracy

Cognitive System			
Knowledge Retrieval	Comprehension	Analysis	Knowledge Utilization
Recall Execution	Synthesis Representation	Matching Classifying Error Analysis Generalizing Specifying	Decision Making Problem Solving Experimental Inquiry Investigation

Knowledge Domain		
Information	Mental Procedures	Physical Procedures

Classroom Example

Anushka, a class three student is thinking about a birthday party she is going to attend this weekend when her teacher begins a maths lesson. Anushka's Self-System decides to stop thinking about the party and engage in the lesson. Her Metacognitive System tells her to pay attention and ask questions so she can do the assignment. Her Cognitive System provides her with the thinking strategies she needs to make sense of the teacher's instructions. The mathematical knowledge about concepts and procedures makes it possible for her to complete the problems successfully. Each component of the New Taxonomy contributes to Anushka's success at learning the maths concept and skills of the lesson.

Bloom's Taxonomy

Bloom's Taxonomy provides an important framework for teachers to use to focus on higher order thinking. By providing a hierarchy of levels, this taxonomy can assist teachers in designing performance tasks, crafting questions for conferring with students, and providing feedback on student work

This resource is divided into different levels each with **Keywords** that exemplify the level and questions that focus on that same critical thinking level. **Questions for Critical Thinking** can be used in the classroom to develop all levels of thinking within the cognitive domain. The results will be improved attention to detail, increased comprehension and expanded problem solving skills. Use the keywords as guides to structuring questions and tasks. Finish the Questions with content appropriate to the learner. **Assessment** can be used to help guide culminating projects. The six levels are:

Level I Knowledge

Level II Comprehension

Level III Application

Level IV Analysis

Level V Synthesis

Level VI Evaluation

Blooms Level I: Knowledge

Exhibits memory of previously learned material by recalling fundamental facts, terms, basic concepts and answers about the selection.

Keywords:

who, what, why, when, omit, where, which, choose, find, how, define, label, show, spell, list, match, name, relate, tell, recall, select

Questions:

- What is...? • Can you select? • Where is...? • When did ____ happen?
- Who were the main...? • Which one...? • Why did...? • How would you describe...?
- When did...? • Can you recall...? • Who was...? • How would you explain...?
- How did ___happen...? • Can you list the three..? • How is...?
- How would you show...?

Assessment:

Match character names with pictures of the characters.

Match statements with the character who said them.

List the main characteristics of one of the main characters in a WANTED poster.

Arrange scrambled story pictures and/or scrambled story sentences in sequential order.

Recall details about the setting by creating a picture of where a part of the story took place.

Blooms Level II: Comprehension

Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptors and stating main ideas.

Keywords: compare, contrast, demonstrate, interpret, explain, extend, illustrate, infer, outline, relate, rephrase, translate, summarize, show, classify

Questions:

- How would you classify the type of...? • How would you compare...? contrast...?
- Will you state or interpret in your own words...?
- How would you rephrase the meaning?
- What facts or ideas show...? • What is the main idea of?
- Which statements support...? • Which is the best answer...?
- What can you say about ...? • How would you summarize... ?
- Can you explain what is happening...? • What is meant by...?

Assessment:

Interpret pictures of scenes from the story or art print.

Explain selected ideas or parts from the story in his or her own words.

Draw a picture and/or write a sentence showing what happened before and after a passage or illustration found in the book. (visualizing)

Predict what could happen next in the story before the reading of the entire book is completed.

Construct a pictorial time-line that summarizes what happens in the story.

Explain how the main character felt at the beginning, middle, and /or end of the story.

Blooms Level III: Application

Solve problems in new situations by applying acquired knowledge, facts, techniques and rules in a different, or new way.

Keywords:

apply, build, choose, construct, develop, interview, make use of, organize, experiment with, plan, select, solve, utilize, model, identify

Questions:

- How would you use...? • How would you solve ___ using what you've learned...?
- What examples can you find to...? • How would you show your understanding of...?
- How would you organize _____ to show...?
- How would you apply what you learned to develop...?
- What approach would you use to...? • What other way would you plan to...?
- What would result if...? • Can you make use of the facts to...?
- What elements would you use to change...? • What facts would you select to show...?
- What questions would you ask during an interview?

Assessment:

Classify the characters as human, animal, or thing.

Transfer a main character to a new setting.

Make finger puppets and act out a part of the story.

Select a meal that one of the main characters would enjoy eating: plan a menu, and a method of serving it.

Think of a situation that occurred to a character in the story and write about how he or she would have handled the situation differently.

Give examples of people the student knows who have the same problems as the characters in the story.

Blooms Level IV: Analysis

Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.

Keywords:

analyze, categorize, classify, compare, contrast, discover, dissect, divide, examine, inspect, simplify, survey, test for, distinguish, list, distinction, theme, relationships, function, motive, inference, assumption, conclusion, take part in

Questions:

- What are the parts or features of . . . ? • How is _____ related to . . . ?
- Why do you think . . . ? • What is the theme . . . ? • What motive is there . . . ?
- Can you list the parts . . . ? • What inference can you make . . . ?
- What conclusions can you draw . . . ? • How would you classify . . . ?
- How would you categorize . . . ? • Can you identify the different parts . . . ?
- What evidence can you find . . . ? • What is the relationship between . . . ?
- Can you make a distinction between . . . ? • What is the function of . . . ?
- What ideas justify . . . ?

Assessment:

Identify general characteristics (stated and/or implied) of the main characters.

Distinguish what could happen from what couldn't happen in the story in real life.

Select parts of the story that were the funniest, saddest, happiest, and most unbelievable.

Differentiate fact from opinion.

Compare and/or contrast two of the main characters.

Select an action of a main character that was exactly the same as something the student would have done.

Blooms Level V: Synthesis

Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.

Keywords:

build, choose, combine, compile, compose, construct, create, design, develop, estimate, formulate, imagine, invent, make up, originate, plan, predict, propose, solve, solution, suppose, discuss, modify, change, original, improve, adapt, minimize, maximize, theorize, elaborate, test, happen, delete

Questions:

- What changes would you make to solve...? • How would you improve...?
- What would happen if...? • Can you elaborate on the reason...?
- Can you propose an alternative...? • Can you invent...?
- How would you adapt _____ to create a different...?
- How could you change (modify) the plot (plan)...? • What facts can you compile...?
- What way would you design...? • What could be combined to improve (change)...?
- Suppose you could _____ what would you do...? • How would you test...?
- Can you formulate a theory for...? • Can you predict the outcome if...?
- How would you estimate the results for...? • What could be done to minimize (maximize)...?
- Can you construct a model that would change...? • How is _____ related to...?
- Can you think for an original way for the...? • What are the parts or features of...?
- Why do you think...? • What is the theme...? • What motive is there...?
- Can you list the parts...? • What inference can you make...? ...? • What ideas justify...?
- What conclusions can you draw...? • How would you classify...?
- How would you categorize...? • Can you identify the different parts...?
- What evidence can you find...? • What is the relationship between...?
- Can you make the distinction between...? • What is the function of

Assessment:

Create a story from just the title before the story is read (pre-story exercise).

Write three new titles for the story that would give a good idea what it was about.

Create a poster to advertise the story so people will want to read it.

Use your imagination to draw a picture about the story.

Create a new product related to the story.

Restructure the roles of the main characters to create new outcomes in the story.

Compose and perform a dialogue or monologue that will communicate the thoughts of the main character(s) at a given point in the story.

Imagine that you are the main character. Write a diary account of daily thoughts and activities.

Create an original character and tell how the character would fit into the story.

Write the lyrics and music to a song that one of the main characters would sing if he/she/it became a rock star and perform it.

Blooms Level VI: Evaluation

Present and defend opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria.

Keywords:

award, choose, conclude, criticize, decide, defend, determine, dispute, evaluate, judge, justify, measure, compare, mark, rate, recommend, rule on, select, agree, appraise, prioritize, opinion, interpret, explain, support importance, criteria, prove, disprove, assess, influence, perceive, value, estimate, deduct

Questions:

- Do you agree with the actions/outcome...? • What is your opinion of...?
- How would you prove/ disprove...? • Can you assess the value or importance of...?
- Would it be better if...? • Why did they (the character) choose...?
- What would you recommend...? • How would you rate the...?
- How would you evaluate...? • How would you compare the ideas...? the people...?
- How could you determine...? • What choice would you have made...?
- What would you select...? • How would you prioritize...? • How would you justify...?
- What judgment would you make about...? • Why was it better that...?
- How would you prioritize the facts...? • What would you cite to defend the actions...?
- What data was used to make the conclusion...?
- What information would you use to support the view...?
- Based on what you know, how would you explain...?

Assessment:

Decide which character in the selection he or she would most like to spend a day with and why.

Judge whether or not a character should have acted in a particular way and why.

Decide if the story really could have happened and justify reasons for the decision.