

Curriculum Methodology & Instructional Strategy Cards

Best Practices Toolkit for Gifted & Talented Education Supplement

Arizona



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Created in Partnership with the Arizona
Association for Gifted and Talented



Creating a Bright Future
for Arizona's Gifted Children

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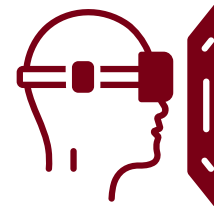
Strategy Definition & Description:

Simulations are "a staged replication of an event or concept through the manipulation of the classroom to enhance the students' understanding of the nature of a given concept or event" (Sisk, 597). Simulations are used in businesses, the military, and higher education. Their potential in K-12 programs has only grown as more games and computer-based programs become available.

Simulations meet all five of the essential factors that Van Tassel-Baska and Little (2003) suggest that educators keep in mind when assessing curriculum for gifted students:

- complexity
- depth
- challenge
- creativity
- acceleration

Simulations are highly motivating and allow gifted students to learn how to make more intelligent decisions about life. Some of the processes employed in simulations include interactive negotiation, persuasive communication, decision making, and creative problem solving. It is very important that the students participate in a "debriefing" or "reflection" after the simulation is complete. This part of the process allows students to think deeply about what they have learned and how they can apply it to the real world.



Why is it important for gifted and talented students?

Why are simulations or simulation learning good for gifted students?

- Novelty- Brings a new lens and way of learning.
- Challenging- multiple content area connections with multi-disciplinary approach.
- Risk - chance to take risks in a safe environment supports increasing a growth mindset that builds stamina.
- Choice - students can make or act on their own choices, supporting student autonomy, voice, and choice.

How do I get started?

Here are 5 steps for a teacher wanting to use a simulation for an upcoming unit:

- **Define Learning Objectives:** Start by identifying the key knowledge and skills you want students to gain from the simulation. This will guide the design and ensure it aligns with your curriculum goals.
- **Choose a Scenario:** Pick a real-world situation that reflects the learning objectives. This could be a historical event, a scientific process, or even a fictional situation that incorporates the target concepts.
- **Develop Roles and Responsibilities:** Assign students roles within the simulation and outline their tasks. This could involve characters, teams, or specific jobs within the scenario.
- **Facilitate the Simulation:** Guide students through the scenario, ensuring they understand their roles and can make decisions that move the simulation forward. You might pause for discussions or reflections at key points.
- **Debrief and Reflect:** After the simulation, lead a discussion to analyze student actions, decisions, and the overall experience. This is where the learning comes alive as students connect the simulation to the concepts being taught.

Guiding Questions

How will the simulation integrate concepts from multiple disciplines? What opportunities will the simulation provide for students to think creatively and solve problems in non-traditional ways? How will you differentiate the simulation experience to challenge gifted students?

Resources Section Links

[Math Simulations.](#) [Simulations and Games to Ignite Learning.](#) [Interactive Curriculum for Purchase](#)



Strategy Definition & Description:

Interdisciplinary and multi-disciplinary learning are similar concepts with a key difference: Multi-disciplinary learning looks at the same topic from the lens of multiple disciplines. It highlights the diverse perspectives these subjects bring to the table, enriching the overall understanding.

Interdisciplinary learning goes a step further. It actively connects concepts and ideas from different subjects to understand a central theme or solve a complex problem. It's about creating a new understanding through the merging of knowledge.

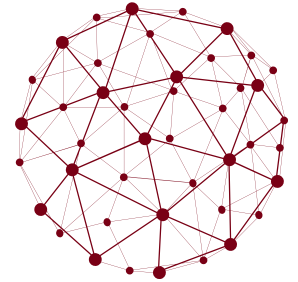
Here's how both approaches promote deep and permanent learning:

Breaking Down Silos: Traditional education often presents subjects in isolation. Interdisciplinary and multi-disciplinary learning break down these silos, forcing students to see the interconnectedness of knowledge. This fosters a more holistic view of the world.

Deeper Understanding: By looking at a topic through multiple lenses, students gain a richer, more nuanced understanding. They can see how concepts from different subjects can be used together to explain complex phenomena.

Active Problem-Solving: These approaches move away from rote memorization and encourage students to actively apply their knowledge to solve real-world problems. This strengthens critical thinking skills and makes learning more relevant and engaging.

Transfer of Knowledge: Students learn to transfer knowledge and skills from one subject to another. This fosters long-term retention and the ability to apply learnings in new contexts, leading to deeper and more permanent understanding.



Why is it important for gifted and talented students?

Gifted learners crave complex challenges found in interdisciplinary lessons; merging knowledge from various subjects, forcing them creative thinking and making connections across disciplines. This deepens understanding and fosters a more holistic view of the world, keeping gifted learners highly engaged in the learning process.

How do I get started?

Imagine studying climate change. A traditional approach might cover it in science class. An interdisciplinary approach could involve incorporating concepts from history (looking at past climate shifts), economics (considering the impact on different countries), and even literature (analyzing how climate change is portrayed in fiction). This creates a more comprehensive understanding of the issue and its complexities. **Here are 5 ways a teacher could try embedding content areas together!**

- **Themed Units:** Plan a unit around a central theme and weave in connections from various subjects. For example, a unit on ancient Egypt could incorporate history lessons, but also delve into hieroglyphics (language arts), pyramid construction (math/engineering), and artistic styles (art).
- **Literature Springboards:** Use a captivating book as a launchpad for interdisciplinary exploration. A novel like "To Kill a Mockingbird" could spark discussions on social justice (history), character analysis (psychology), and even debates on legal systems (civics).
- **Real-World Problem Solving:** Present real-world challenges and have students tackle them using knowledge from different subjects. Designing a sustainable city could involve science (renewable energy), math (urban planning), and even social studies (considering community needs).
- **Creative Projects:** Assign projects that require students to integrate knowledge from various disciplines. Building a model volcano could involve science (eruption mechanics), art (creating a realistic model), and even a dash of history (learning about famous volcanoes).
- **Guest Speakers:** Invite professionals from different fields to speak about their work. An engineer could discuss bridge design, linking math and physics concepts to the real world. This allows students to see the interconnectedness of knowledge in action.

Guiding Questions

How can you weave concepts from at least two different subjects into your planned unit? How will this interdisciplinary approach help students gain a richer understanding of the topic? What opportunities will students have to actively apply knowledge from different subjects within the lesson? Is there a way the unit could provide theme practice by integrating arts, science, or history?

Resources Section Links

[Integrate Arts and STEM for GT learners.](#) [Example Activity Integration of History, Art, Geography.](#)



Strategy Definition & Description:

Not to be confused with the other PBL (Project based learning) Problem based learning is a form of inquiry-based education, where learning is initiated with an ill-structured problem and students direct their own course of study. Originally invented for medical school, students learn to direct their own course of study.

Students are challenged to delve deep into the issue, exploring multiple perspectives and collaborating to devise viable solutions. This inquiry-based model not only cultivates subject knowledge but also fosters essential skills such as teamwork, communication, and creativity.

A common misconception in Problem based learning occurs when the focus of study is centered on a final project or presentation, rather than a solution to the problem. With Problem based learning, bring the focus of the learning around solving the problem and not so much focus around the product or end result of the research.

Gallagher, S. A. (2018). Problem-Based Learning in Your Classroom. RFW Publications.



Why is it important for gifted and talented students?

Ill-structured problems allow gifted students to increase content knowledge in an area of study. Students can increase their functioning of processing knowledge. Students benefit as they are able to work from discovering multiple solution paths, so they can really be the drivers of their own learning. Essential for learning and engagement, students have choice and decision making, when it comes to what they research and what they question and uncover throughout the problem. PBL supports evaluative thinking, as students have to use critical thinking to move through the problem in a meaningful way, while also developing a final project that represents their learning throughout the ill-structured problem. Problem Based Learning encompasses an authentic, real world problem in a specific content area. Student engagement is focused on a solution to the problem, not an end product. This really keeps students focused on the learning and not on making a product (that may not push the mental envelope).

How do I get started?

While there are many curriculum frameworks and units that exist already, teachers can create their own problem based learning unit using their own content! Here are 6 steps to get going with problem based learning in your classroom:

1. Start with a story! Capture student attention with a call to action, a story that sets the stage for your content or unit.
2. Identify the stakeholder role. What lens are your students using? Are they the animal activist, environmentalist, journalist, engineer, principal? Any role OTHER than student allows them to transport into a different lens for thinking.
3. Once you have engaged them by the story, call to action, and their role in the problem, then invite inquiry and investigation. Get them asking questions! Ask what questions should they consider first? This part is really about providing students the opportunity for sustained investigation/evolution of an idea
4. Then, the problem is defined! Students determine what the problem is, some potential issues, and what additional information is needed.
5. Once the problem is defined, students engage in how to solve that problem. The class comes to a consensus on the solution to the problems and share out research and overall products to demonstrate thinking and learning.
6. Ending the unit focuses on debriefing from the problem. What was considered? Allow students to review, reflect, and even extend the learning.

Guiding Questions

What content in your upcoming unit could allow students to delve deeper into research? Does this unit have an opportunity to explore a potential "problem that needs to be solved"? What are some possible stakeholders (real world roles) that would care about this potential problem? How long do we anticipate this unit going and how can we structure the timeline of research? How will students demonstrate their understanding of the problem and solution?

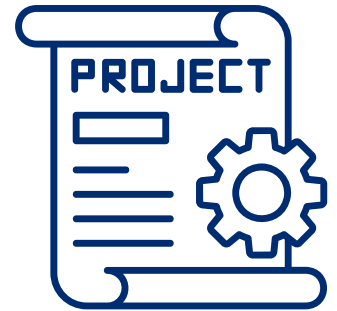
Resources Section Links

[Problem Based Learning.](#) [Structure of Problem Based Learning.](#) [Examples and More](#)



Strategy Definition & Description:

PBL: (Project-based learning), is a long-term investigation driven by real questions connected to the real world that result in authentic products that show student learning. This captures the essence of PBL: longer and deeper inquiry, research, student-made products, and connections to the world and life outside of school. This teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an engaging and complex question, problem, or challenge. They actively research, brainstorm, and create solutions over an extended period. This fosters critical thinking, collaboration, and presentation skills as students tackle authentic challenges. While some projects are done individually or in pairs, most are completed in teams, because learning collaboration skills is an important goal of PBL. The PBL classroom is a collaborative workshop, thrumming with important work, productive talk, visible thinking, and exciting creativity. There is a degree of "messiness" in these classrooms; a visitor may say it looks chaotic, but it is structured and purposeful chaos — sometimes even joyful chaos. Ron Berger (2013) calls PBL classrooms "the hub of creation" (p. 70). Teaching in these spaces is often exhilarating and can renew a teacher's calling and passion. <https://kappanonline.org/misconceptions-project-based-learning-wolk/>



Why is it important for gifted and talented students?

Project based learning (PBL) offers a unique and powerful approach to engage gifted and talented students. Unlike traditional methods, PBL allows them to delve into complex problems and real-world applications of knowledge beyond the confines of a textbook. Research by Susan Winebrenner supports this notion, highlighting how PBL environments encourage students to think critically, ask insightful questions, and develop creative solutions. This deeper exploration aligns perfectly with the intellectual curiosity and advanced abilities of gifted learners. Furthermore, PBL fosters essential skills like collaboration, communication, and presentation, which are crucial for future success in any field. By combining intellectual challenge with real-world relevance and skill development, PBL creates an ideal learning environment for gifted and talented students to flourish. Project Based Learning is more expansive and multidisciplinary with a focus on the end product or performance. Gifted students benefit from autonomy and choice over their learning, making project based learning a great strategy to elicit and maintain students' engagement.

How do I get started?

Here are 5 easy-to-follow steps for teachers implementing project-based learning (PBL) for gifted and talented students in their classroom:

- Begin by brainstorming real-world problems or open-ended questions related to the curriculum OR offer students choice in selecting a project topic that aligns with their interests and allows them to explore their strengths.
- Once project topics are chosen, collaborate with students to develop guiding questions that go beyond surface-level understanding. Support students with creating inch, foot, and yard questions (an example of deepening the complexity of their questioning).
- While the overall project goals remain consistent, provide options for students to demonstrate their learning in unique ways. This could involve differentiated products like creating a website, composing a musical piece, or conducting an in-depth research paper.
- Encourage students to work in teams on their projects, fostering collaboration and communication skills. Provide guidance and resources, but also empower them to take ownership of their learning process through independent research and exploration. Use a collaborative rubric in addition to a project rubric to support with self and peer scoring.
- Culminate the project with a student-led presentation or demonstration where they showcase their solutions and learning journey. Encourage self-reflection by having them write about their experience, challenges overcome, and key takeaways from the project.

Guiding Questions

What are some opportunities in our content for students to take a lead on their learning? How can we structure student learning in teams and how may we manage team and individual student learning? What considerations can we make about the timeline and criteria for success throughout this unit?

Resources Section Links

[Project Based Learning](#)



Strategy Definition & Description:

The active questioning process is the most effective when teachers start teaching for questions instead of teaching for answers. However, when teachers ask students to make up many different questions about a topic, students not only need a knowledge base about the topic, but also need a knowledge base about questioning. Long story short, questioning needs to be taught... Teachers can teach the language of questioning by drilling down to question types. While there are many different questioning pedagogies in education, identifying types of questioning that can overlap into any context, subject area, and age level, can support students and deepen their knowledge. Learning a variety of question types can deeply benefit gifted and talented learners.



Why is it important for gifted and talented students?

Active questioning opens the door for gifted learners to engage in learning, employ creativity, and explore topics more fully. Check out the box below to ensure you have a nice mix of higher-order questions for your gifted learners.

How do I get started?

How you explicitly teach questioning types to your students is to ensure that you are asking a mix of these sorts of questions on your assessments, your assignments, and your day-to-day practice. A good rule of thumb is that you are asking an equal number of lower-level questions as you are higher-level questions.

The 5 types of questioning are defined and explained below. Use a variety of question types in your teaching:

- 1. Quantity-Reproductive Questioning:** Think of it as the thinking skill of listing or rattling off details or ideas. This questioning type, while there is a time and place for it, is the most common amongst teachers. Reproductive questions often limit or “slight” high level thinking and creativity.
Example: *Can you list the parts of a clock?*
- 2. Quantity-Productive Questioning:** Think of this as the Brainstorming skill. We are focusing still on quantity, how many ideas we can generate and not necessarily the quality. Though, there is a level of choice and open-minded thinking that comes from this question type that is not found in the reproductive questioning. Where there can be as many answers as possible (with no right or wrong answers).
Example: *What are all of the ways to tell time other than looking at the clock?*
- 3. Compare and Contrast Questioning:** How things are alike and how they are different? Using this type of questioning allows students to move from concrete to the abstract thinking. By using this questioning strategy, students progress gradually to more difficult or complex strategies that require forced associations.
Example: *Compare both right and left hands, how are they the same? Different?. How are computers and can openers alike and/or different?*
- 4. Feelings and Opinion Questioning:** These are fun questions, but also a challenge to teach and to model with! These questions pull the teacher and the student together on an emotional level. There is something called a fringe benefit with these questions as these questions can open the door to motivation. The hidden force that motivates everyone to learn is emotion. These questions are charged with emotion, especially if they fit a students age, interest or abilities.
Example: *In your opinion, should the state government pass a law forcing bicycle riders to wear helmets?*
- 5. Point of View Questioning/What if?:** This is kind of the “anything goes” attitude where questions often result in laughter, creative thinking, and active questioning. Seriousness can really break this whole process. Laughter is the key that unlocks divergence which can help us to move convergent thinking into divergent thinking.
Example: *What if human beings did not have tongues?*
- 6. How Come? Questioning:** Begin with how come and require higher level thinking skills than the ones that just begin with “how”. They are the best example of the philosophy that questions are more important than answers. This allows for fun and creativity in coming up with the answer whether or not there is a logical answer.
Example: *How come jumbo shrimp are so small?*

Guiding Questions

Where could there be opportunities in your lesson to adopt some of these higher-level active questions? In what ways could you adjust the questions from your textbook to hit a variety of active questioning types?

Resources Section Links

[Active Questioning Still Makes the Difference.](#) [Click here to access](#) questioning types and sentence stems for each set.



Strategy Definition & Description:

Choice Boards (sometimes called Extension Menus or Choice Menus) are a foundational technique for many teachers as a way to differentiate for students. Usually represented in a tic-tac-toe board format, there are tasks that the students can choose from to complete that usually allows them choice in how they represent their learning.



Why is it important for gifted and talented students?

Give students choice, where appropriate. By giving students choices, instructors can enhance student motivation (Adams et al., 2017). This lets students address topics that are culturally relevant to them. It also gives some agency to students over their own learning.

The importance of choice is not unique to needs of the gifted and talented child, however, what we know about the gifted brain is that allowing for choice rewards the gifted brain.

Today's novelty-seeking brain finds physiological rewards in being actively involved in learning through choice. Including provocative ideas, challenging activities, and involving students in creating the criteria in which they select their path in their learning is critical if we want to instill and maintain cognitive engagement.

Sousa, D. A. (2003). *How the Gifted Brain Learns*. SAGE Publications.

How do I get started?

There are a few key considerations when attempting a truly well-designed choice board. Many times, choice boards, while the intent is good, has been done so wrong in education. ***Below are some ways we have done choice boards dirty.***

Don't give the easy way out! A lot of choice boards out there have low level tasks, like "recite 10 facts" or write a research essay, as a few options. What would most of us rather do? The easier of the options! Then, as teachers, we are scratching our heads as to why our kids are doing the bare minimum when we know they are capable of the task with more grit.

Don't give option fatigue and how am I scored?! Some choice boards have like 9-12 choices with NO criteria as to how well or how much needs to be done. For example, they may be provided a choice to be a book author, then there's a cute little picture of a book, but where is there the criteria in which they will need to meet to be successful with the task? If students do not realize how they'll be scored or what they need to include to be successful on this task, then we are missing the point of the task in the first place.

Pick one skill, any skill! A few choice boards are built with several skills to choose from. Which provides the illusion of choice, however, usually the tasks from this choice board stretches very little thinking and you'll find them done with it before you make your rounds around the room.

So, we know what NOT to do, what DO we do?

Ensure that "choice" is not the only reason we are doing this choice board. Yes, choice is great, but how do we also ensure all students are supported? To make tasks engaging for all learners, offer a variety of formats, catering to different learning styles and abilities. This ensures everyone can showcase their work comfortably. Students will also have some choice in how they demonstrate understanding, fostering ownership and reducing resistance. Since the content is new, we'll explore it through different activities, allowing them to practice in ways that work best for them. Remember it is not about what students are "doing" it is about what they are "thinking". Usually menus are about doing. You can DO a 3D model and learn absolutely nothing. If you want them to show what they have learned, ensure your 3D model also has them labeling, defining, describing, summarizing, and debating the importance of their topic. That is the difference between doing and thinking.

Guiding Questions

How can you leverage the choice board format to encourage your gifted students to go beyond completing activities and use it as a springboard for independent creation or exploration? Is there an upcoming unit that would lend itself well to developing a choice board that increases depth and complexity so students can dive deeper into that content?

Resources Section Links

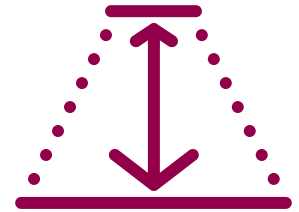
[Choice Menus Article Gifted Guru](#)



Strategy Definition & Description:

Depth and Complexity is a framework used to help students apply thinking skills in the same manner that experts practice their craft. Eleven icons, representing eleven pathways/lenses, pair with prompts that can be used in any field of study. These prompts help students access a more complex understanding of a topic through analysis and evaluation.

The **elements of depth** allow learning to proceed from the concrete to the abstract, or the known to the unknown. They are: Language of the Discipline, Details, Patterns, Rules, Trends, Unanswered Questions, Ethics, Big Ideas. The **elements of complexity** connect concepts at a more sophisticated level. They are: Over Time, Multiple Perspectives, Across Disciplines.



Why is it important for gifted and talented students?

Gifted students tend to have advanced knowledge and rapid learning rates that set them apart from their peers. They often master content with little need for practice and repetition. Differentiated questions and tasks using depth and complexity stems allow gifted students to stay engaged with their learning and satisfy their need for deeper understanding of content. The prompts of depth and complexity are an incredible tool to begin differentiating learning objectives. Teachers can quickly modify a lesson's goal to increase the challenge by plugging in the depth and complexity prompts. Be careful to pair these icons WITH higher levels of Blooms Taxonomy to ensure rigorous learning.

How do I get started?

Get going with teaching with Depth and Complexity with these steps:

1.) Begin by becoming familiar with the icons and related question stems. The Center for Depth and Complexity has an entire section devoted to the icons. Each icon includes a video, curricular examples, question stems and task statements.

Website: <https://depthcomplexity.com/the-icons/>

2.) During lesson planning, analyze the standard/objective/task that students are required to meet or complete. Choose an icon that best matches this content. It is not necessary to use all the icons all of the time. Start small, and build your expertise over time.

3.) Craft extension questions or tasks to support the content and the icon you chose. Use sentence stems to support increasing the depth and complexity of your lesson.

4.) Provide students with the question and the expectation for demonstrating mastery. This could be student choice or teacher choice and may occur in a variety of formats, including writing, drawing, slide show, presentation, etc.

5.) Use the icons as a graphic organizer to allow students to think with "different lenses" during a lesson. See how you can have students "draw out" their graphic organizers to use with the icon of focus.

6.) Double check that your lessons are meeting both levels of depth and complexity in thinking and mental process. Check out this "differentiator" tool, that supports you with developing learning targets with embedding the depth and complexity icons.

Guiding Questions

Thinking about your upcoming lesson/unit, what are some key concepts or content areas where you'd like students to engage in deeper analysis or consider multiple perspectives? How could the Depth and Complexity Icons help guide students in this exploration? Considering your gifted learners' strengths, which Depth and Complexity Icons (e.g., change over time, unknowns, abstract concepts) could you prioritize to challenge them and encourage them to think beyond the surface level in this upcoming unit? How can you leverage the Kaplan Depth and Complexity Icons to provide opportunities for your gifted students to go beyond basic content mastery and explore the topic with greater depth and complexity (e.g., creating original solutions, proposing alternative perspectives)? Beyond the lesson itself, how can you integrate the Kaplan Depth and Complexity Icons throughout the unit to encourage your gifted students to take ownership of their learning and explore their own questions and areas of interest that arise from the topic?

Resources Section Links

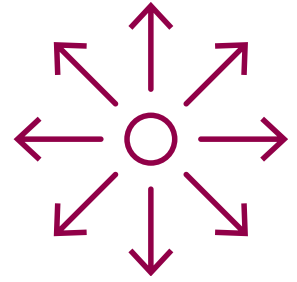
[The Center for Depth and Complexity Gifted Guild's Guide to Depth and Complexity](#)

[Learn more about Depth and Complexity from Byrdseed.](#)



Strategy Definition & Description:

Divergent thinking is a creative process that generates new ideas through free-flowing, unstructured brainstorming that encourages any and all possibilities in a safe, collaborative environment. This involves a lot of pedagogy in the world of education. Specifically for supporting gifted and talented learners, we will focus on the framework of FFOE thinking. (Fluency, Flexibility, Originality, Elaboration). These thinking strategies and processes help students brainstorm, make connections, and develop creative ideas. Much of teaching expects convergent thinking (where there is one correct answer that we are searching for.) However, divergent thinking calls for the opposite, where many ideas that are original and bend the "rules" of thought is promoted.



Why is it important for gifted and talented students?

In education, we have gotten into the habit of "the most ideas are the best ideas". How many times have you had that student in class rapidly fire off idea after idea? While that student demonstrates a fluency of ideas, it is not the only thinking type we should be eliciting from our gifted students. *The four components within divergent thinking are:*

Fluency – The ability to generate numerous ideas or alternatives to solve a problem that requires a novel solution.

Flexibility – The ability to consider a number of different perspectives in an effort to generate a wide variety of ideas or alternatives.

Originality – The ability to generate novel, unique, and rare ideas or alternatives to solve a problem that requires an innovative solution

Elaboration – The ability to generate a large number of minute details or descriptions that explain a specific and novel solution to a problem

How do I get started?

Include an array of thinking type questions into your teaching, with some examples below.

Kindergarten Sample (Topic: Holidays)

- **Fluency:** List as many foods as you can think of that you might eat on Thanksgiving.
- **Flexibility:** Now imagine that Thanksgiving didn't happen because all the turkeys went on vacation. What would be some other ways you and your family could celebrate?
- **Originality:** If you could make your own holiday, what would you call it? Try to give it a name that you don't think anyone else will come up with.
- **Elaboration:** Now design a Holiday Card to help everyone understand what makes your day so special. What details can you include so that everyone understands as much as possible about your new day?

Grade 2 Sample (Topic: Famous Americans)

- **Fluency:** Make a list of as many Famous Americans as you can think of.
- **Flexibility:** Choose one Famous American and imagine he/she has traveled through time and is now the principal of your school. What would be different? Use pictures or words to describe what may change.
- **Originality:** Create a nickname, a slogan, or a catchy phrase that sums him/her up.
- **Elaboration:** Add your Originality idea to the front side of the \$20. What additional pictures, images, and symbols would you add to that bill that represent your Famous American? Remember, there are two sides to a \$20.

Grade 5 Sample (Topic: Systems)

- **Fluency:** List of all the systems needed for a civilization to flourish.
- **Flexibility:** Discuss how the civilizations might be affected if one or more of those systems "failed."
- **Originality:** Brainstorm ideas for a failed ancient civilization. Think about the 5 W's while you are brainstorming.
- **Elaboration:** Using your social studies textbook as a model, design a 1-2 page description of the rise and fall of your civilization. Use nonfiction text features (maps, charts, diagrams, tables, headings, etc.) to further elaborate.

Guiding Questions

How can you leverage divergent questions to empower your gifted students to delve deeper into the topic, ask their own questions, and pursue independent research to expand their understanding? What questions from an upcoming unit could we adapt into divergent language to promote higher order thinking from our students?

Resources Section Links

[Divergent Question Stems](#)



Strategy Definition & Description:

Evaluative thinking involves examining all the information available to make a sound judgment or decision. A disciplined approach to evaluative thinking includes multiple aspects of problem-solving: examine all the information available, suspend initial judgment, affirm the existence of bias and consider its impact, wrestle with ambiguity, question assumptions, consider all points of view, and reflect on the process and the final decision. Evaluative thinking is the mental process of examining information and ideas critically to form a judgment or make a decision. It involves analyzing strengths and weaknesses, considering different perspectives, and weighing evidence before reaching a conclusion.



Why is it important for gifted and talented students?

Evaluative thinking does not happen in isolation. It is paired with reasoning, which is a key component in identifying students as gifted. While there may be natural strengths in the reasoning process, these skills can and should be further developed through evaluative exercises that provide practice in this higher order thinking skill. Evaluative thinking is comprehensive, thought-provoking and a valuable skill for gifted and talented students to develop. The students who are able to evaluate and offer a solution that is based on valid considerations have an opportunity to shine during these specially designed lessons that call for evaluative thinking. Providing students with a select set of criteria to keep in mind during the lesson supports behaviors such as seeing more than one viewpoint, understanding criteria, and supporting decisions.

How do I get started?

1. Teach your students about evaluative thinking! Chances are, your gifted students ability to think evaluatively may have even led to their referral for testing. It is important to teach the components of thinking just as explicitly as other skills or content. Teach students the main points and steps of evaluative thinking are:

- **Determine the problem**
- **Brainstorm solutions**
 - — Decisions are based on valid, factual observable or measurable criteria rather than opinions.
- **Develop your criteria**
 - — From among many choices, criteria help guide students to the best solution when there is not one “right” answer.
- **Judge the best answer**

2. Develop your students evaluative thinking with quality tasks! Project or problem based learning (see curriculum methodologies section) can allow for student critical and evaluative thinking. Think of open ended real world problems that students could reason through this thinking process. This can be in the form of using curriculum sets like PETS that teach evaluative thinking OR in the form of a quick evaluative thinking activity (like the one below) you can use with your students to get them thinking in an evaluative way.

Example: Kindergarten-First Grade

“ Look! Our friends are having so much fun playing on the playground! They can slide, swing, and climb! But oh no! (Show the rainy playground picture) It looks like it has started to rain! Now there's a big puddle on the playground. How can we play without getting wet!”

1. Identifying the Problem:

- What's the problem here?

2. Brainstorming Solutions:

- How can we help the children play on the playground even with the puddle? (Think of as many ideas as possible! Encourage creative solutions)

3. Developing Criteria:

- Now that we have lots of ideas, what makes a good solution for the puddle problem? (Discuss and create a list of criteria together)

4. Evaluating, Judging, and Choosing:

- Let's vote on the best solution for the puddle problem!
- *Extension: Students draw their solution for the puddle problem on a separate sheet of paper or construct a 3D model solution.*

Guiding Questions

Evaluative thinking often involves personal judgment. How can you incorporate questions that encourage your gifted students to connect their understanding of a topic to their own values and beliefs? This could involve questions like "How does this concept of justice align with your own personal ethics?" or "If you could create a new law, what would it be and why?"

Resources Section Links

[Ranking](#). [Think Law](#)



Strategy Definition & Description:

SCAMPER is an acronym for seven creative thinking techniques used to brainstorm ideas and approach problems from different angles. SCAMPER was developed by Bob Eberle. Students use the checklist format to brainstorm multiple possibilities to create unusual connections between objects, and/or ideas. The model is used to generate unique thought, explore relationships, and search for new or different combinations. Students have the opportunity to share ideas using originality and elaboration.

Here's a breakdown of each element:

- 1. Substitute:** This involves replacing elements of a concept, process, or object with something else entirely. Ask "What if we swapped X for Y?" to spark new ideas and challenge assumptions.
- 2. Combine:** This encourages merging existing ideas, concepts, or objects into something entirely new. Ask "Can we put together X and Y to create something unique?" to foster innovation and cross-disciplinary thinking.
- 3. Adapt:** This focuses on modifying an existing concept or process to fit a new situation or purpose. Ask "How can we adjust X to work better for Y?" to encourage flexibility and problem-solving.
- 4. Modify (Magnify & Minify):** This involves taking an existing concept and either amplifying or minimizing its scale, characteristics, or applications. Ask "What if we made X much bigger/smaller?" or "How can we change X to be more/less of something?" to explore extremes and generate unexpected solutions.
- 5. Put to another use:** This challenges you to find new and different applications for an existing object, concept, or process. Ask "Can we use X for something completely different?" to promote resourcefulness and unconventional thinking.
- 6. Eliminate:** This involves removing elements from a concept, process, or object to see if it functions differently or reveals new possibilities. Ask "What happens if we take away X?" to encourage simplification and identify core elements.
- 7. Reverse:** This flips the concept, process, or object on its head and explores the opposite approach or perspective. Ask "What if we did the exact opposite of X?" to challenge assumptions and generate unexpected solutions.

SCAMPER



- S** **SUBSTITUTE**
Replace a think or concept with something else
- C** **COMBINE**
Unit? What? Who? Ideas? Materials?
- A** **ADAPT**
Adjust to a new purpose. Re-shape? Tune-up?
- M** **MODIFY, MAGNIFY, MINIFY**
Change the color, sound, motion form, size
Make it larger, stronger, thicker, higher, longer
Make it smaller, lighter, slower, less frequent, reduce
- P** **PUT TO ANOTHER USE**
Change when, where, location, time or how to use it.
- E** **ELIMINATE**
Omit, get rid of, cut out, simplify, weed out...
- R** **REARRANGE, REVERSE**
Change the order, sequence, pattern, layout, plan, scheme, regroup, redistribute...

Created by Adnan Akyüz with Canva

Why is it important for gifted and talented students?

Why is S.C.A.M.P.E.R. good for gifted students?

- Encourages fluid, productive, flexible and divergent thinking
- Provides structure for open-ended responses
- Encourages problem solving
- Stimulates creativity and imagination
- Promotes risk taking
- Uses higher-level questioning strategies
- Applies previous knowledge to new situations,
- Encourages inventive, "out-of-the-box" thinking

How do I get started?

- 1.) Familiarize yourself with the strategy!** There are several components, so teaching SCAMPER in a few lessons, would allow students to access each part of the SCAMPER strategy in a deep and meaningful way.
- 2.) Choose any task that you can use to overlap the SCAMPER method to.**
 - **Primary Example (K-4):** Engineer a chair for Mr. Bear, using the SCAMPER technique to elevate the task.
 - Example Lesson: [Chair for Mr. Bear](#) Use the [SCAMPER model](#) template to teach students how to think using scamper.
- 3.) Think about how you can even take ONE of the components of SCAMPER and apply it to an upcoming lesson.**
 - **Secondary Example : SUBSTITUTE:** Imagine a lesson about the water cycle. The teacher could use SCAMPER by asking students to "Substitute" the sun for a different heat source and explore how it would impact the evaporation process. This encourages them to think beyond the typical model and consider alternative explanations.

Guiding Questions

How can specific SCAMPER prompts encourage analysis, evaluation, or application of knowledge in new contexts in the content of an upcoming unit or lesson? Where and how could you fit the SCAMPER strategy into an upcoming unit?

Resources Section Links

[Teach students the concepts of SCAMPER](#)



Strategy Definition & Description:

The Six Thinking Hats strategy, developed by Edward de Bono, is a tool for improving individual and group thinking by encouraging different perspectives on a topic. It uses six metaphorical hats, each representing a specific thinking mode. Here's a breakdown:

White Hat: Focuses on facts and neutral information. What data do we have? What information do we need?

Red Hat: Encourages emotions and gut feelings. How does this make you feel? What are your initial reactions?

Black Hat: Takes a critical and cautious approach. What are the potential problems or risks? What are the downsides?

Yellow Hat: Looks for the positive aspects and potential benefits. What are the advantages? What could go well?

Green Hat: Promotes creativity and new ideas. How can we approach this differently? What are some innovative solutions?

Blue Hat: Manages the thinking process itself. What is the goal? How are we using the hats?

The key is to wear each hat one at a time, ensuring everyone focuses on that specific mode of thinking before switching to the next. This helps to avoid emotional arguments, biases, and encourages a more well-rounded analysis of a situation.

Six Thinking Hats® Quick Summary



Why is it important for gifted and talented students?

Gifted learners often have asynchronous development. The Six Thinking Hats strategy supports cognitive and affective needs of gifted learners through pattern recognition. It builds thinking routines, supporting the cognitive need for recognizing patterns. It encourages gifted learners to explore different perspectives and think critically. It also provides a structured approach to brainstorming and problem-solving, helping channel creativity effectively. This structured approach ensures they consider all aspects of an issue before forming an opinion. It also helps develop a growth mindset and expand rigid thinking patterns.

How do I get started?

The great thing about this tool is that you can use it in any way that meets your needs. All 6 hats and ways of thinking do not all have to be used each time you want to explore multiple perspectives. If you just want to think about facts, pros, cons, and new ideas, you can just use white, yellow, black, and green hat thinking.

Option 1: You can assign partners or groups a hat color and ask them to think in that way to start a lesson. Students can rotate thinking hats and be required to switch up their thinking to focus on something new within the same lesson.

Option 2: You can explore one way of thinking whole group and capture student thinking down on chart paper or have students draw/write on thinking mats. Then switch hats and get student input using a new way of thinking. Remind students to think about the different information they are able to compile about a single issue depending on the thinking that's required.

Some more considerations: You can ask students to "put on a hat" to:

- Compare two texts
- Discuss the choices a story character made (or needs to make)
- Debating a point in a book or lesson
- Evaluate the best math strategy needed
- Explore and discuss social studies and science content (discussing laws, decisions made by leaders, taking care of the Earth, animal adaptations...

Guiding Questions

How could you introduce the 6 Thinking Hats strategy to your students and ensure they understand the purpose and function of each hat? Which hats could you plan to emphasize during the upcoming lesson/unit, and why? How might you encourage students to the hats independently or collaboratively? In what ways could you adapt the use of the hats to cater to the diverse needs of your gifted learners? How may you provide them with additional challenges or opportunities to use specific hats?

Resources Section Links

[TONS of lessons, videos, and printable resources to help you teach 6 thinking Hats](#) AND [Learn more about the hats on this blog](#)



Strategy Definition & Description:

The Socratic method of teaching is based on Socrates' theory that it is more important to enable students to think for themselves than to merely fill their heads with "right" answers. Therefore, he regularly engaged his pupils in dialogues by responding to their questions with questions, instead of answers. This process encourages divergent thinking rather than convergent (see previous cards for examples on different types of thinking).

Students are given opportunities to "examine" a common piece of text, whether it is in the form of a novel, poem, art print, or piece of music. Open-ended questions are posed after "reading" the common text "like a love letter". Open-ended questions allow students to think critically, analyze multiple meanings in text, and express ideas with clarity and confidence. Students can then come together and "discuss" **not debate**, the open ended questions either prepared by the teacher (or even prepared by the students).



Why is it important for gifted and talented students?

Gifted students thrive on deep exploration. Socratic Seminars fuel curiosity by fostering independent thought, demanding clear communication of complex ideas, and allowing them to grapple with challenging topics alongside intellectual peers.

Matches their intellectual curiosity: Gifted students often crave complex ideas and deeper understanding. The open-ended nature of the seminar allows them to explore the nuances of a text, delve into challenging questions, and grapple with various interpretations.

Promotes independent thinking: Gifted students actively participate in constructing knowledge through critical analysis and debate. It encourages them to form their own opinions based on evidence and logic.

Develops sophisticated communication skills: Students articulate complex ideas clearly, defend positions with evidence, and respond thoughtfully to opposing viewpoints; honing communication skills and expressing advanced understanding.

How do I get started?

Step 1: Select an Appropriate Text - The Socratic Seminar strategy is based on close textual analysis, so it is important to select a text that provides ample avenues for interpretation and discussion. If you choose a simple text where the meaning is fairly straightforward, there won't be much for students to discuss. Also, the text should not be too long to read closely in the allotted amount of time. Often, teachers select a text ranging from one paragraph to one page.

Step 2: Give Students Time to Prepare- Before beginning the seminar, it is essential that students have time to prepare ideas. Students should annotate the text before the start of the class discussion. Teachers often assign a discussion leader who generates a few open-ended questions that can be used to begin the seminar.

Step 3: Develop a Classroom Contract- These seminars have rules that may not apply to other forms of discussion, so before beginning the seminar, it is important that everyone is aware of the norms.

Step 4: Holding The Socratic Seminar- A Socratic Seminar activity often begins with the discussion leader, a student or the teacher, asking an open-ended question. A typical opening prompt is: What do you think this text means? Silence is fine. It may take a few minutes for students to warm up. Sometimes teachers organize a Socratic Seminar activity like a Fishbowl activity, with some students participating in the discussion and the rest of the class having specific jobs as observers. At least 15 minutes should be allotted to the activity, and it can often last 30 minutes or more. As students become more familiar with the Socratic Seminar format, they will be able to discuss a text for longer periods of time without teacher intervention.

Step 5: Reflect and Evaluate

After the Socratic Seminar activity, give students the opportunity to evaluate the process in general and their own performance specifically. Reflecting on the seminar process helps students improve their ability to participate in future discussions.

Guiding Questions

What text(s) will students be analyzing during the seminar? How will you ensure they are prepared to critically discuss them? What are some open-ended, higher-order thinking questions to guide the seminar discussion or how could you encourage students to formulate their own questions? How do you plan to establish clear expectations for respectful dialogue, providing and analyzing evidence, and considering multiple perspectives? How will you differentiate the seminar experience for gifted learners?

Resources Section Links

[More ideas on teaching socratic seminar.](#) [Socratic Seminar Sentence Stems](#)



Strategy Definition & Description:

Synectics is a creative thinking process to anchor learning. This teaching strategy that uses analogies and metaphors to help students develop creative thinking skills and deepen their understanding of concepts. The term comes from two Greek words that mean "joining dissimilar things together". William Gordon developed the model in 1961. This strategy can be a great one to use prior to teaching a unit or as a lesson closer to ignite or cement learning. Participants use various techniques to distance themselves from conventional thinking. This could involve creating a metaphor for the problem, describing it from an unusual perspective (like a machine's point of view), or even exaggerating specific aspects.



Why is it important for gifted and talented students?

One characteristic that may lead a child to being identified as a gifted learner, is their "Out-of-the-Box" thinking. The use of synectics as a strategy supports the brain in breaking away from traditional problem-solving approaches, and synectics can lead to innovative and unexpected solutions. Gifted learners thrive in novel thinking situations and this strategy stimulates the need for thinking that is diverse, creative, and innovative. The novelty also creates lots of class discussion and thinking before, during, and after the lesson. Entertaining the wild and silly ideas that can come from students connecting these two very unlike things, can increase engagement and excitement in learning a new topic.

How do I get started?

Synectics engages students in creative and divergent thinking and small group discussion, extending their thinking into new areas. Synectics is also fun! Metaphors and similes help students make connections that anchor their learning. Using four main steps, the Synectics Module can help any teacher turn a "boring or complicated" subject or concept into something creative and interesting!

Step 1: Begin by ensuring students have a good understanding of the concept or skill. For example, if you are trying to have students connect learning to a science unit, it should be something they have a little bit of background on first.

Step 2: Ask students to compare it to something unrelated that you provide. For example, in a math class, you might ask, "How is a calculator like a pillow?" Students could respond individually, but small group discussions stimulate more conversation and better responses since the students work off of and build upon one another's ideas. At first, it may be difficult to solicit responses since they seem unconventional; indeed, they are, and that is the purpose. When people link unrelated ideas, it increases the likelihood of remembering the concept or item.

Example 1: A calculator is like a pillow because both offer support and contain content to help the individual. In addition, they have a similar shape.

Example 2: In a biology class, you might ask how a microscope is like a paintbrush. Both provide a picture of something and let you see what was previously unseen. A student also needs a good eye to interpret these new pictures.

- 1. Direct Analogy** – Teacher identifies the concept to be explored by creating a direct analogy (e.g. "Learning is a circus.") and invites students to think of characteristics for each.
- 2. Personal Analogy** – Although some students may find this step challenging at first, this is where student creativity is ignited and birthed by "becoming" the conceptual object and analog. (e.g. "Learning – I feel shunned and very unappreciated at times." Circus– "I feel excited because I'm the life of the party!") Group sharing and class dialogue is also a benefit!
- 3. Analog Contrast** – Students compare and contrast the analog and conceptual objects. Again, other opportunity for students to express their various creative and different thoughts. (e.g. "Learning is not like a circus because it's not always entertaining and exciting!")
- 4. New Analogy** – Students have the pleasure of creating their own analogy or a group analogy. Being the last step of the module, students are likely to be excited about presenting their new idea to the classroom! (e.g. "Learning is like a box of chocolates.")

Guiding Questions

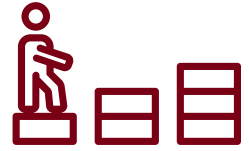
What specific challenge or concept in your upcoming lesson can benefit from a fresh perspective? How will you frame it to encourage "making it strange" for students? This helps the teacher identify a suitable topic and plan creative ways to break away from traditional approaches. How will you encourage students to use metaphors, analogies, or even personification to explore the chosen topic? Will you provide any prompts or examples to spark their creativity? How can you structure the lesson to allow for both individual brainstorming and collaborative exploration of the different analogies generated by students?

Resources Section Links

[More information on how to use synectics in the classroom](#)

Strategy Definition & Description:

Tomlinson (1999) described tiered lessons as “the meat and potatoes of differentiated instruction.” A tiered lesson is a differentiation strategy that addresses a particular standard, key concept, and generalization, but allows several pathways for students to arrive at an understanding of these components based on their interests, readiness, or learning profiles. A lesson tiered by readiness level implies that the teacher has a good understanding of the students’ ability levels with respect to the lesson and has designed the tiers to meet those needs. Think of a wedding cake with tiers of varying sizes. Many examples of lessons tiered in readiness have three tiers: below grade level, at grade level, and above grade level. There is no rule that states there may only be three tiers. The number of tiers we use will depend on the range of ability levels in your own classroom since you are forming tiers based on your assessment of your students’ abilities to handle the material particular to this lesson. Students are regrouped the next time you use tiering as a strategy. The idea of flexible, rather than static, groups is essential. Adams, C., & Pierce, R. (2004). *Tiered Lessons: One Way to Differentiate Mathematics Instruction*. *Gifted Child Today*, 27(2), 50-65.



Why is it important for gifted and talented students?

The use of tiered instruction and student choice allows learners to work within their zone of proximal development, which means they are working at a level that suits them. At its core, tiered instruction combines assessment and instruction. "Tiered instruction aligns complexity to the readiness levels and learning needs of students. The teacher plans different kinds and degrees of instructional support and structure, depending upon each student's level. Tiered instruction allows all students to focus on essential concepts and skills yet still be challenged at the different levels on which they are individually capable of working (n.p)." Kingore (2006). Tiering instruction allows the teacher to differentiate for all levels of students in their classroom.

Examples of tiered instruction:

- Tier 1: Tasks for learners with advanced readiness and skills for the curriculum level.
- Tier 2: Tasks for learners with readiness and skills for the curriculum level.
- Tier 3: Tasks for learners with less readiness and skills for the curriculum level.

How do I get started?

Step 1: Select a unit of study based on the Arizona State standards.

Step 2: Determine the topics, concepts and guiding question for your unit. What do you want all students to know?

Step 3: Assess all students for readiness and enduring understanding of topics and concepts that you will teach. The results of this assessment will help you to adjust the levels of learning that will be included in your tiered activity.

Step 4: Determine the skills students will need to successfully understand and use this information. What do you want all students to understand? (Understanding is the enduring knowledge. It is the ability to use later.)

Step 5: Create a unit or ongoing lesson that is:

- Interesting
- High Level
- Causes students to use key concepts, ideas, critical thinking

Step 6: Use the equalizer to chart the complexity of the activity. This will help to ensure successful learning for all students.

Ratchet up or down as needed.

Think about material for basic to advanced levels.

Think about scaffolding needed for acquisition of new skills.

Step 7: Determine two to four ways that students can demonstrate their successful learning.

What do you want your students to do to demonstrate their learning?

Step 8: Match tasks to student based interests, learning profile and readiness.

Step 9: Provide for student success by coaching, facilitating and presenting lessons.

Guiding Questions

In what part of the lesson could you tier (content, process, or product)? How may you determine the tiers (readiness, interest, or learning profile) and how many tiers are you thinking you want to create? How may you ensure that each tier is challenging, equally exciting, and developmentally appropriate for your students?

Resources Section Links

[Davidson Institute Blog on Tiering Lessons for Gifted Learners](#)

[Tiered Assignments Examples](#)

