SUPPORTING TEACHING
TWICE EXCEPTIONAL STUDENTS

TOOLKIT STRATEGIES

July 2022

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Purpose

This document serves as a supplement to the Virginia Department of Education's technical assistance document, Supporting the Identification and Achievement of the Twice-Exceptional Student. The purpose of this supplement is to provide strategies for teachers to implement as part of their instructional practices to support twice-exceptional students in a gifted education classroom. All gifted students, including those with disabilities, deserve the opportunity to experience success in a gifted classroom through strategic planning and the implementation of a variety of strategies and accommodations to meet student needs. A disability should not be the primary reason for non-participation by a student who is eligible for gifted education; however, it is important to understand that students with disabilities may face challenges in some areas of the gifted curriculum. The degree of difficulty depends on the nature and severity of the disability.

The information contained in this document is intended to serve as a resource for gifted and special education professionals. It includes practical, effective instructional strategies as well as resources to support students with disabilities. The VDOE's gifted education and special education websites provide additional resources that may be helpful in addressing the needs of twice-exceptional learners.

Introduction

Twice-exceptional children can confound teachers because of their widely varied needs. They may need more support than typical-age peers and yet may need enrichment and acceleration. This toolkit is designed to help teachers who are looking for strategies to help twice-exceptional children succeed in their classroom. This toolkit provides a range of approaches, strategies, and specific tools that can be used to select or adapt appropriate materials and activities. It is not assumed that teachers are gifted educators, general education teachers, or special educators, but it is assumed that collaboration between all three aspects is useful.

Teachers can use this toolkit to design lessons based on an understanding of students' needs. The toolkit is based on the Universal Design for Learning model in which teachers provide options and varied curriculum experiences so that students have multiple ways of receiving and engaging with content and demonstrating their understanding. Creating these multiple opportunities in ways that are congruent with the needs and abilities of twice-exceptional children can be a challenge, but this toolkit provides guidance for the making these choices.

Goals of Twice-Exceptional Toolkit

This toolkit is designed to assist teachers and systems in meeting the needs of twice-exceptional students in the K-12 setting. These activities and models are designed to:

1. ensure that teachers and systems have access to programs, services, and instructional models that serve the needs of twice-exceptional students;

2. provide programming and instruction that focus on developing students' strengths while providing support for areas of weakness;

3. provide enriched and accelerated content that is accessible to students who have the ability to learn at high levels, if accommodations are provided;

4. help all students grow and stretch intellectually and cognitively, even those who do not have a traditional achievement profile;

5. provide access to advanced placement, honors, or advanced classes to all students who meet the criteria for participation; and

6. understand the social and emotional challenges of students who may become frustrated struggling with the tension between being able to conceptualize a task and the difficulties enacting it.

Overview of Characteristics of 2E Students

Twice-exceptional, also known as 2e, students exhibit significant characteristics of both giftedness and disability (Kaufman, 2018). These students may have difficulty reading but can discuss all theories of UFOs and show the documentation to support their thinking. They may be struggling in math but demonstrate excellent leadership skills in the class. Oftentimes, these students may not be identified as twice-exceptional since both giftedness and the disability can mask each other, but they do show peaks and valleys of strengths and challenges. With these wide-ranging abilities, professionals and families must collaborate to develop learning experiences to address the various student needs.

Twice-exceptional students differ from underachieving gifted students in that there is an identified disability that may be creating feelings of frustration and motivational challenges. Like underachieving gifted students, twice-exceptional students may also need counseling service and relationship development skills, but the issues of instructional accessibility focus on the impact of a disability rather than the motivational issues created by social and emotional issues of underachieving gifted students.

According to The Association for the Gifted, a division of the Council for Exceptional Children, the twice-exceptional student is defined in the following manner:
- Twice-exceptional (2e) individuals evidence exceptional ability and disability, which results in a unique set of circumstances.

- Their exceptional ability may dominate, hiding their disability; their disability may dominate, hiding their exceptional ability; or each may mask the other so that neither is recognized nor addressed.

- Additionally, twice-exceptional individuals come from and are impacted by neurological, linguistic, socio-economic, individual, and cultural diversities.

Twice-exceptional students, who may perform below, at, or above grade level, require the following:
- Specialized methods of identification that consider the possible interaction of the exceptionalities;

- Enriched/advanced educational opportunities that develop the child's interests, gifts, and talents while also meeting the child's learning needs; and/or

- Simultaneous supports that ensure the child's academic success and social-emotional well-being, such as accommodations, therapeutic interventions, and specialized instruction.

Working successfully with this unique population requires specialized academic training and ongoing professional development.

Twice-exceptional children are highly individualistic, and there is no single profile of a twice-exceptional child. Often there is a "peaks and valleys" profile of academic abilities, related to the significant strengths and the significant challenges. Twice-exceptional children may exhibit characteristics that include:
- Attentional weaknesses

    o Hyperfocus when the topic is of interest

    o Significant difficulty focusing when the topic is not of interest

- Impulsivity

- Organizational weaknesses

- Difficulty learning in one or more specific areas of content

- Significant strengths and advanced knowledge in one or more specific areas of content

- Difficulty with emotional regulation

- Emotional intensity

- Significant issues with perfectionism and frustration

- Difficulties with social interactions and social awareness

- Difficulties with visual or auditory processing

- Wide range of differences between academic areas of strength and areas of challenge

- Widely different levels of motivation and persistence between areas of strength and areas of challenge

- Wide differences between verbal and performance abilities

    o High level of language but slower processing speeds; or conversely,

    o High levels of spatial abilities and low level of language

- High levels of anxiety and existential angst

Students who are identified as twice-exceptional are most often identified with a disability such as a Specific Learning Disability, Autism, Emotional and/or Behavioral or Communication disorder. This Toolkit focuses on the needs of twice-exceptional students with an identified or suspected difficulty in one of these cognitive, communication, or emotional areas. Certainly, there are twice-exceptional students with physical, sensory, and health disorders, and their disabilities may involve accommodations such as significant use of assistive technologies.

Lesson Planning for Twice-Exceptional Students

When designing a lesson for the twice-exceptional student, this Toolkit provides strategies and suggestions of ways that simultaneously increase difficulty while also increasing access through curriculum design and differentiation. It is important to note that every lesson **must** focus on an area of strength for a twice-exceptional student, even if the content area is one of difficulty. Strengths of twice-exceptional children need to be the focus of the instruction, while utilizing strategies to provide access and reduce the impact of the disability on the development of the strength. The teacher might consider the following lesson plan format:

Lesson Plan Model

Virginia Standards of Learning
Lesson Objective
Lesson Resources

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Opening/ Beginning/ Anticipatory Set			
Middle/Instruction/ Connection/Guided Practice			
Middle/Student Work Focus/ Independent Instruction			
Closure/Ending/ Culmination/ Formative Assessment			

Completed sample lesson plans for elementary, middle, and high school language arts lessons can be found in Appendix A.

Dual Design and Differentiation Model

One method that is utilized when designing a lesson for twice-exceptional students is the Dual Design and Differentiation Model (refer to Figure 1). This model examines the aspect of the Content Process, Product Model (VanTassel-Baska, 1986) through the lens of Universal Design for Learning (CAST, 2018) that is a brain-based approach to providing multiple means of representation, multiple means of engagement, and multiple means of expression. The goal for the teacher is to proactively design curriculum experiences that will allow a student to have success in the development of their strengths while mediating the barriers that may be caused by their disability.

Figure 1- Goal of Dual Design and Differentiation for 2e Learners

With proactive design guided by data-driven differentiation, educators are pre-empting negative learning experiences so that students do not have to experience failure before they can experience success and the joy of learning. Figure 2 demonstrates this approach.

Figure 2: Dual Design and Differentiation Model
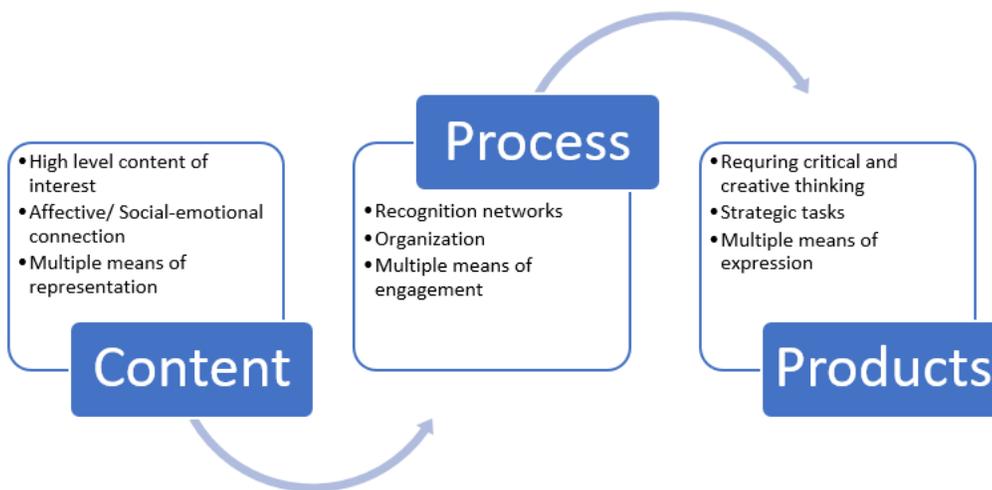
Curriculum planning for 2e learners begins with two contextual elements:

1) Content that is driven by state standards; and

2) The specific aspects of the child's learning, social-emotional, and self-regulation needs.

With this data-driven information, this model can be broken into three phases of instructional design and differentiation:

    A. Multiple ways to provide content

    B. Multiple ways to provide opportunities for students to think about and engage with content

    C. Multiple ways for students to demonstrate their knowledge and understanding of content

Curriculum for twice-exceptional learners must focus on the development of the talent **and** mediate the barriers that the disability can create. In order to do this, curriculum must provide advanced content in multiple ways, encourage critical and creative thinking through multiple ways for students to engage, and require students to apply their thinking through multiple options for products.

Contextual Elements
Content is more than the Virginia Standards of Learning. It is how teachers select what they are going to emphasize and connect to the Standards. Content for twice-exceptional children must include:
- content that is high level and of interest to the student;

- social and emotional strategies and supports; and

- multiple means of representation.

Content Needs
Appropriate content for twice-exceptional learners is content that:
- aligns with state standards;

- aligns with student interests;

- is high level and complex; and

- provides experiences that are targeted to real world problems.

Content should be targeted toward the 2e child's interests and at a level similar to other content that is provided to more typical gifted children. The goal for curriculum instruction for 2e students is to provide inclusive efforts to gifted curriculum and content.
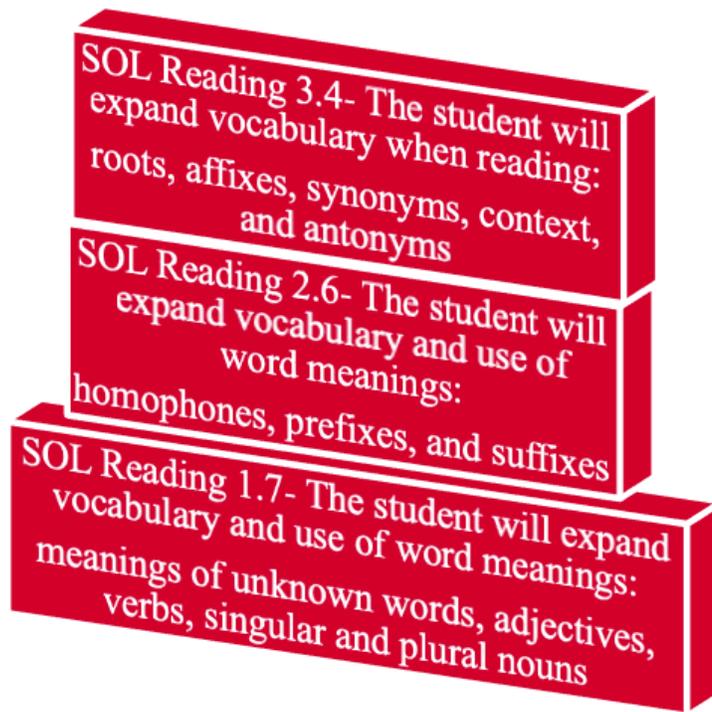
Challenging Content
Using the standards to elevate difficulty is an excellent strategy for increasing the challenge of content. Standards were developed to scaffold onto each other as grade levels increase. If a student has access to higher-level standards, they can be appropriately challenged at their level. In response to the issue of, "We aren't allowed to teach anything other than grade-level standards," note that determining where the grade-level standard maps onto the next grade level is still "teaching to the grade-level standard" with an extension.

Conversely, in areas of difficulty, it is possible to build onto grade-level standards by identifying supports from earlier grade levels. By scaffolding up and down the standards, teachers can identify appropriate content that meets the child where they are and still supports grade-level instruction.

For example, if a twice-exceptional child is in second grade and the content area is reading, teachers could use the sequence of standards to help both challenge and support the child. If a twice-exceptional child is struggling with the meanings of unknown words in reading, it is worthwhile to do an in-depth word analysis by examining the structure of words through roots, affixes, prefixes, suffixes, and singular and plural nouns to help them understand the overall meanings. This stacking of multiple grade levels to provide "enriched remediation" is a strategy through which advanced and lower-level content can be used to provide understanding of grade-level concepts.

Figure 3 - "Stacked" Standards of Learning

SOL Reading 3.4- The student will expand vocabulary when reading: roots, affixes, synonyms, context, and antonyms

SOL Reading 2.6- The student will expand vocabulary and use of word meanings: homophones, prefixes, and suffixes

SOL Reading 1.7- The student will expand vocabulary and use of word meanings: meanings of unknown words, adjectives, verbs, singular and plural nouns

Jamie Casap (2020), an education executive at Google, says that we should stop focusing on, "What do you want to be when you grow up?" and start focusing on, "What problems do you want to solve?" The first question provides a job title that might change over time, whereas the second question provides purpose. Appropriate content provides the material that serves a purpose for learning.

Content of Interest

Regardless of what content the teacher selects, the curriculum must be in an area of interest or strength for the 2e student. The topic or interest area either can be the direct focus or can be aligned to the concept of instruction. By using the areas of interest and strength, you can engage the student in the content in ways that will allow them to access the content. By denying them their area of interest, you are limiting the window of opportunity for them to connect with broader content.

Identifying these areas of interest is a combination of linking to prior interests and providing opportunities for new interests to emerge. For example, if this second grade, twice-exceptional child is very passionate about penguins, then analyzing new words could be done on a penguin graphic organizer.

Prefix
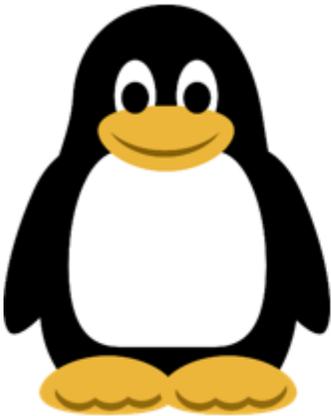
Root word

Suffix

This Photo of a penguin by Unknown Author is licensed under CC BY-NC

The student could also read about penguins, write about penguins, learn directions by examining penguin migrations. Then, because of their interest in penguins, the teacher could offer opportunities to learn about explorers of the South Pole, or puffins.

Content: Social-Emotional Weaknesses
Although varying scores on cognitive and academic assessments often identify twice-exceptional children, some significant social-emotional issues may affect their learning. These social-emotional issues can have implications for behavior management and classroom performance. Academic achievement is not merely a factor of ability and skills; the management of social and emotional weaknesses are key to developing "soft skills" such as persistence, motivation, and time management.

While both gifted children and children with disabilities often have unique social and emotional needs, twice-exceptional children have challenges that are both a blend of these and unique to them (Baum et al., 2003). Some of these social and emotional implications include:

- **Asynchronous Development - Wavering Self-Concept**
  Twice-exceptional students develop "asynchronously" which means uneven development. Often viewed as the "mountain peak" students, they tend to have very high scores in specific areas of content and very low scores in global areas and/or processing skills. This asynchronicity can lead to a self-concept that wavers significantly, depending on the environment and the educational and/or social demand (Troxclair, 2019). This wavering self-concept can lead to students showing a lack of initiative, perseverance, and academic achievement as well as behavior problems.

- **Lack of "Fitting in"- Challenges with Friendships**
  Often, twice-exceptional children recognize themselves as "smart" but then question the outcomes of their efforts. They understand that they react or perform in ways that make them and others question their abilities. Their impulsivity and lack of social awareness can lead to social challenges and difficulties finding an accepting peer group. Their imagination or abilities often mean that they are frustrated with their peers with disabilities, and yet their disabilities can impede communication with their gifted peers.

- **Perfectionism**
  Because they are trying to align their performance with their knowledge of their capabilities, twice-exceptional children often develop paralyzing perfectionism that can lead to procrastination, anxiety, and unreasonable goals. They often perceive expectations of their families and teachers, and they have an intense fear of disappointing the adults in their lives.

- **Self-Regulation**
  Twice-exceptional children are often highly analytical, which can impede their ability to understand and cope with their own emotions (Sanchez, n.d.). At the same time, their disabling condition can interfere with their ability to perceive and process their feelings and behaviors. As a result, their outbursts and behavior can be intense and disruptive to their own learning and their environment, or conversely, they can appear to be disengaged at times when emotions are expected. For example, twice-exceptional children with Autism Spectrum Disorder might act out their emotions through movement, withdrawal, or inappropriate tantrums. Self-regulation is a key skill to creating internal and external environments conducive to learning.

Assistive Strategies for Social and Emotional Challenges
There are a number of ways that teachers can help a child navigate their social and emotional difficulties, especially before, during, and after an event like a full-blown meltdown, as well as provide ongoing support. These strategies are known as de-escalation techniques.

De-escalation techniques are useful when a teacher recognizes that a child is heading towards an emotional outburst. For some students, these outbursts can be physical, manifesting in aggression or injury, while other times, these outbursts may result in crying, screaming, or "tantrums." Understanding that these events occur after a period of small, escalating events can help a teacher and, ultimately, the student recognize these triggering situations and identify strategies that can help the child cope. It is helpful to understand the sequence of events that escalation can take and actions to take that minimize the impact of the incident.

Triggers- These events or interactions can set off a chain of emotions. Sometimes, these triggers might occur earlier, or they can happen near the point of explosion. It is important for the child to recognize their triggers. Sometimes, they can learn to avoid these triggers, or they can learn to cope through mindfulness and other strategies to minimize the impact that can lead to agitation.

Agitation- The child can begin to dwell on the issue that triggered them and the emotional response they had to it. This period of agitation often results in a lack of focus on events and people around them. It is very important for the teacher to help the child identify which emotions they are feeling. "[Name It to Tame It]" is a strategy that teaches a child to identify their specific emotion they are feeling. [Emotion Wheels] are excellent tools for helping twice-exceptional children, who tend to value exactness and analysis, describe what they are feeling.

Acceleration, Peak, and De-escalation- Once a child has begun the sequence of behaviors often referred to as "losing it," a "melt down," "tantrum," or "explosion," it is important to recognize that intervention is not the goal, but safety and isolation are of priority at this time. The child has to go through the emotional storm that has been produced, and any effort at stopping it will simply make it worse. The goal is to make sure that the storm is not met with shame but with peace and awareness. Explosions are hard to observe; they are even harder to experience.

Post-crisis depletion- Immediately after an explosion and expression of energy, there is often a significant depletion of energy. The child withdraws and is unable to communicate with or engage with others. It is important to gradually induce the child back with mundane tasks. If there had been injury or repercussions from the explosion, this is not the time to engage in discussion with the child. They can perform basic functions but may be incapable of learning or reflecting at this time.

Recovery- Once the child has recovered, they often will feel shame and guilt. It is during this time that teachers and children can discuss strategies to a) learn from the incident and avoid going through the explosion again, and b) repair damage that may have been caused.

It is important to note there are a number of excellent resources available for de-escalation strategies. While there is not a specific intervention for twice-exceptional students, the process is pertinent to helping them learn when and how to master their emotions to reduce explosions. Besides de-escalation strategies, there are other approaches that can be used with twice-exceptional students, including supports that help children identify emotions and engage with others.

Teacher Actions
Beyond directly working with the student, there are a number of ways that teachers can frame the social-emotional "weakness" of the twice-exceptional child.

Perspective Shifting
One key aspect of working with 2e children is a shift in focus and redefining behavior away from areas of need to areas of strength. Oftentimes, special education and gifted education can look at the same behavior and where one sees an issue, the other sees a strength. It may become important for the education team to shift their language. Examples of such shifts can be the discussions of, "Is it…"
- an obsession or a passion?
- a sensory-integration issue or sensitivity?
- lack of social skills or introversion?
- anxiety or awareness?

- hyperactivity or high energy?

- splinter skills or specific talents?

The key question that should be asked is, "In what circumstances is this behavior a problem, and in what circumstances is this a strength?"

Strength Identification

There are numerous ways to identify the areas of strength and interest. As a team, you may want to address the following questions:
- What academic areas does the child already excel?

- Have you ever noticed an area in which the child was exposed to a new concept and learned it very quickly?

- Are there any skills that the child uses to solve problems?

  o It is important to note that the solutions may not be what we look for but are often used to solve a problem for the child's benefit. Example: Argument or an effective distractor during a particularly difficult topic.

- Are there any behaviors that the child uses to express their internal world of interests or strengths? Examples: Dancing or doodling.

- Have you used an interest assessment, such as the Interest-A-Lyzer, to determine areas of interest?

It is important to note that strengths may be used in inappropriate manners or at inappropriate times. For example, a child with a strong sense of verbal wit may be viewed as the class comedian. The goal is to identify the behavior as a strength and seek to develop it for appropriate usage.

Kluth and Schwartz (2008) noted that areas of strength can be used to:
- Develop relationships with others who are interested in similar topics

- Minimize anxiety

- Make sense of a confusing world

- Expand social opportunities

- Boost literacy by encouraging motivation

- Make life worth living

Explicit Instruction

Twice-exceptional learners may need explicit support and instruction for social skills and self-regulation. This instruction can take the form of peer support through "Lunch Bunches," other peer-involvement programs, or strategies provided by the school support staff. Generally, it is helpful to explore the "hidden curriculum" or the aspects of school that are not tested through academic content but are reinforced culturally acceptable ways of interactions. Using visuals such as the Emotional Zones or the Taxonomy of Human Emotions can provide access to students who are struggling to express their emotional states. Teaching topics such as how to engage others in conversation, demonstrate acceptable distancing, and understand how to ask for information allows a 2e student to make such social interactions and complete cognitive tasks rather than obscure invisible rules.

Modeling Focus on Growth

Often twice-exceptional children are frustrated by the gap between what they can conceive and their ability to carry out the task or activity. As a teacher, rather than focusing on these gaps or by only focusing on their area of strength, it can help to focus on the growth they are achieving. The emphasis on change and growth can help them see how far they have come rather than how far they have to go.

Providing a Structured Classroom

Richard Cash (2014) noted that there are three C's in a classroom that are essential for a twice-exceptional child to thrive. These classroom practices include the following: consistency of expectations and management (rules, rewards, and consequences applied consistently); conciseness of rules and directions; and concrete examples of policies or procedures need to be clear and available.

Relationship Building

Perhaps the greatest asset a twice-exceptional child has is a caring and informed adult. Studies of resiliency found that students who had a knowledgeable adult supporting them during a particularly vulnerable time were more likely to have positive relationships as adults, regulate their behavior, and succeed in school (Harvard Center on the Developing Child, 2021). A teacher, parent, or a paraprofessional who supports the child, provides a safe place for emotional security, and helps the child plan and monitor his or her own behavior will have a tremendous impact on the child's future.

Multiple Ways to Provide Content

Once content is selected, there are numerous ways to present that information. Vygotsky's Cognitive Development Theory (Moore, 2011) noted that the elements of cognitive growth includes attention, sensation, memory, and problem-solving. All four factors can be impacted by disability. As described below, teachers should present content in ways that provide access and support for these four functions.

Memory Support | Sensation | Providing Content through Multiple Forms of: | Attention Support | Problem-Solving
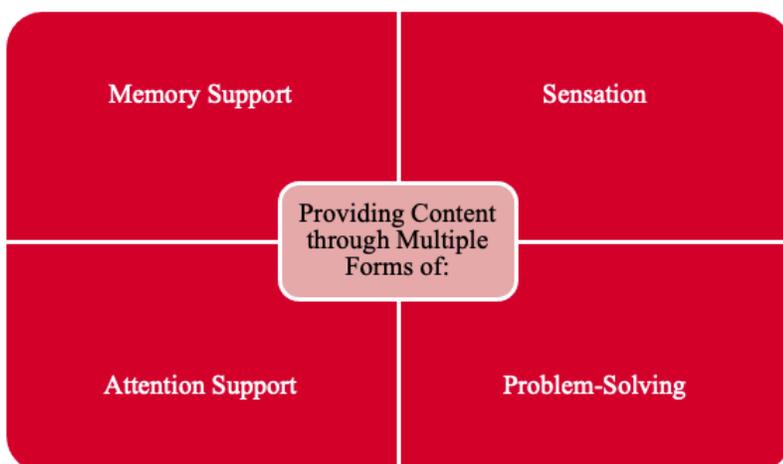
Sensation
Some students learn better when they receive information through multiple senses (Baines, 2008). Ideas for providing content in ways that provide sensations for students include:
- Hands-on materials

- Use of materials in a play environment

- Use of multi-sensory information. This is NOT "learning styles," but multi-sensory instruction that uses multiple means of providing sensory information. Multi-sensory learning does not assume that students have one way of learning but that the more the senses are engaged, the better students can make sense of learning. Some examples would include:

  o Teaching spelling by saying the letters, tracing the letters in sand, moving the hands to form the letters, and reading the letters.

  o Learning to do math with physical manipulatives, numbers, and group work.

  o Creating an infographic, a video review, or a mobile art project for a book report.

Attention
How learners focus and shift their attention and what they focus on and do not focus on has tremendous implications for how well they learn (Kruschke, 2003). Teaching students to monitor their own attention can provide metacognitive strategies that can improve learning. Some ideas for providing content in ways that can keep and maintain attention for students include:
- Mindfulness moments before presenting information

  o Breathing exercises such as "breathe in a flower" or "blow out the candle"

- Brightly colored materials

- "Chunked" information, such as bullet points

- Use of "white space" between problems or pieces of information

- Offering opportunities to allow children to doodle the information or draw it out

- Having directions and information presented one at a time, sequentially

- Use of visuals to present information

- Key words that signify where attention should be given, such as large font, headings, and bolding

- Use of humor or novelty. Examples include:

  o Cutting problems apart and placing in paper bags to draw one out at a time

  o Use of cartoon or popular characters to present information

  o Tongue twisters or songs to present information

- An environment that has soft lighting, soothing music, and natural colors

- Providing a clear, visual schedule of the next activity

- Implementing Rick LaVoie's (2008) six methods, or the 6P's, of increasing a child's attention or motivation for completing a task. This includes:

  o Offering Praise to children

  o Presenting Projects for children to engage in

  o Having children work in groups with other People

- o Offering Prizes for completion of work

- o Providing recognition and a title to gain Prestige

- o Providing choices or Power

Attention is key to motivation for learning. If a child can focus and maintain their focus on content, they are much more likely to engage and learn. For some 2e children, attention may be an area of weakness associated with their disability, and their learning, despite their strengths, is impacted. By providing multiple strategies to get and keep attention, teachers can allow children access to high levels of learning.

Memory

"Working memory" is the term used to describe the ability that a person has to hold and manipulate information in the mind over a period of time (Gathercole & Alloway, 2008). Working memory is important in the manipulation of thinking, or being able to think about numerous pieces of information at once. On contrast, long-term memory is often comprised of discrete facts and skills, and can be brought forth through memory strategies. Many 2e children have challenges with working memory. Their long-term memory is often very strong, but their working memory is often impacted by attention or language challenges. Teachers that can provide memory support to 2e children can help them process complex material in ways that they can then work with it. Some strategies for memory support include:

- Mnemonics- such as songs, creation of words, or first initials being formed into a sentence (e.g., "The ABC Song," "My Very Elegant Mother Just Served Us Noodles" (for the order of the planets, or "Nine Pizzas," depending on your definition of "planet")

- Repetition- quizzes, drills, flashcards, etc. that provide repetitive activities to help encourage memory

- Association- connect the needed information to something else, often through a visual image (e.g., the Greek word for "bank" is "trapeza"—show a picture of a trapezoidal table over which money is exchanged.

- Acronyms- e.g., FANBOYS (to remember the seven coordinating conjunctions) and ROY G. BIV (to remember the colors of the rainbow)

- Music or Rhyme- e.g., "I'm Just a Bill" from Schoolhouse Rock

- Stories that present concepts as images within the story- e.g., George Washington crossing the Delaware River as imagery for fighting the British

- Lists and other graphic organizers for different kinds of thinking

- Having students teach others, especially younger children. Have fourth graders tutor kindergartners, and eleventh graders tutor ninth graders.

Supporting 2e students' memory loads will allow them to work with more content without being bogged down trying to manipulate large amounts of information. Teaching memory strategies is one way to present information in such a way that the student can engage with it successfully.

Problem-Solving

For students, problem-solving is a key skill they need to learn to function in a world of change. Problem-solving requires exploration of a situation, strategies for effective knowledge acquisition, and creative applications to find solutions and achieve a desired outcome (Csapó & Funke, 2017). Often, having a reason to learn content can provide the framework for 2e students to engage productively with specific content. Presenting the problem first then having students learn content to solve the problem is a means of reaching academic success. Such strategies for presenting information can include:

- Having material presented in a game format (e.g., presenting the six major biomes in a Minecraft

amusement park ride that explains the impact of the biomes on people).

- Using conceptual thinking to link specific content to other content (e.g., using "change" to understand interrelationships between various piece of literature, science, and social studies. Hilda Taba, a pioneer in the area of gifted education, developed some classic conceptually-based activities that provide strategies to allow students to explore concepts.

- Framing content within a problem- or project-based learning activity in which students must acquire knowledge in order to solve particular problems (e.g., "If there is a major chemical spill on the highway, what do we need to know in order to clean it up?").

- Researching issues to solve rather than individual topics (e.g., "How can oil tankers reduce their impact on puffin populations?" rather than static research on "puffins").

Providing a purpose for learning is one way that allows students' choice and autonomy over their own learning. When selecting ways to present information to students in order to increase motivation for learning and to provide support for challenges due to a disability, teachers must have numerous strategies from which they can select.

Process: Multiple Ways to Engage with Content

After presenting the materials to the students, teachers have numerous strategies to help students with their thinking tasks. Twice-exceptional students often have difficulty thinking through content, whether it be due to underlying language, auditory, or visual processing weaknesses. Using inductive reasoning, deductive reasoning, creativity, and/or critical thinking provides a way for 2e students to organize their learning for a purpose and to use their strengths. At the same time, teachers can provide ways that help students organize their thinking through metacognition, which is essential to support any issues related to disabilities.

Creative Thinking

Asking students to think creatively about content encourages them to use their abilities to "think outside the box." Mark McGuinnes, an experienced coach and trainer of creative professionals, described several models of instructional practices that encourage students to think creatively. These include:

- Reframing- which involves asking students to look at something in a different way, such as:

  o What else could this mean?

  o Where else could this be useful?

  o What can I learn from this?

  o What is funny about this?

  o What would a solution look like?

  o What good things are hiding inside of here?

  o How does this look to others?

  o How might someone I admire approach this?

- Mindmapping- asking students to find connections and relationships through visual representation through nonlinear reflection.

- Planning a time to rest, recover, and come back to a problem with new insight.

- Providing enough time to get into the "flow" so that a solution can emerge after enough time to work on a problem or project, and the goal becomes enjoyable.

- Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis- asking students to generate ideas about SWOT to a given situation.

Additional creative thinking approaches include:
- The Six Thinking Hats of Edward De Bono, in which opportunities and emotional associations are explored. This thinking process aims to make the student more productive, focused, and mindfully involved as a group.

- SCAMPERR by Bob Eberle, in which students substitute, combine, adapt, modify, put to other uses, eliminate, reverse, and rearrange ideas and functions to come up with new ideas.

- Torrance's Elements of Creativity, which includes fluency, flexibility, originality, and elaboration.

By using a model of creative thinking, teachers can provide a way for students to think creatively about content so that they can focus on their abilities while mediating the impacts of their disability.

Critical Thinking
Teachers often want students to think in depth about content, but instead of creative, divergent responses, they want students to reason and provide deductive responses that reflect critical thinking. Critical thinking is the analysis and evaluation of one's own thinking processes in which thoughts are evaluated and changed in response to a desired purpose (Paul & Elder, 2019). Through use of critical thinking models, teachers can direct students' thinking so that their responses can reflect thoughtful, "higher order" thinking. Listed below are several critical thinking models that allow teachers to scaffold thinking.
- Bloom's Taxonomy- this familiar model provides a stair-step approach to scaffolding children's thinking. By building on existing knowledge, children can then move on to higher and higher levels, ending with the highest level of all—creativity or synthesis in which something new is produced after a process of evaluation and critique. This model demonstrates the importance of having basic knowledge then being able to manipulate thinking for various purposes. Teachers have numerous models from which they can scaffold questions, including:

- Paul and Elder's Critical Thinking Wheel- in contrast to Bloom's increasing levels and need for mastery of previous levels before moving on to new levels, Paul and Elder's Critical Thinking Wheel allows students ways to analyze materials and communication in different ways that are related but not dependent on each other. Including aspects such as questioning assumptions, determine points of view, making inferences, identifying problems and purposes, and the examination of data, the Critical Thinking Wheel provides a means to encourage students to structure their thinking and questioning.

- Beyer's Evaluation Model- this model focuses on critical thinking as a series of decision-making skills. This model emphasizes six elements, including habits of mind of skepticism, criteria for judgements, creating and identifying arguments, reasoning using validity and soundness of decision-making, the determination of points of view, and applying procedures for judging. This model emphasizes the use of criteria to establish guidelines for thinking.

By using critical thinking, 2e students can begin to establish habits of mind in which students analyze content and apply criteria to evaluate its appropriateness for specific purposes. By using a specific model, 2e students have a scaffold upon which they structure their thinking.

Metacognitive Support
Often defined as "thinking about thinking," metacognition is the control a person takes over their own thinking processes in order to approach and plan through a task (Hendrick, 2014). Metacognitive support enables students to benefit from instruction because a teacher can provide a student with both knowledge about thinking skills and practice in using them. While various thinking models can help structure thinking, 2e students often need additional support with metacognitive thinking, in which they support, plan, and evaluate their own

thinking. According to Hendrick (2014), metacognition can be broken into three categories of knowledge: personal variables, task variables, and strategy variables.

- Knowledge of personal variables includes knowing oneself and the optimal learning environment for an individual. It includes knowing when to take a break, when to eat, if quiet music would be helpful for a study session, if one learns best by sharing knowledge with others, or if such an activity would be too distracting. It includes awareness of oneself as a learner and an autonomy to create an environment conducive to learning.

- Knowledge of task variables includes understanding both the nature of the task itself and the demands of the task upon the individual. For example, understanding that solving a physics problem may place greater cognitive demands upon a person than reading a novel.

- Knowledge of strategy variables is the process of understanding what cognitive tasks are needed to meet the demands of the problem. It is understanding how to think through the physics problems or how to plan to write a paper. Such metacognitive strategy support often comes in the forms of learning strategies. The University of Kansas has a long-established research track record of the Strategic Instruction Model (SIM), in which children with weaknesses in thinking are provided structure for planning in reading, writing, math, studying, performance, and test-taking, among others.

By providing metacognitive, creative, and critical thinking models, teachers can help 2e students organize their thinking. By removing the barriers created by the disability that can impair language processing, organization, impulsivity, memory, and other cognitive areas, 2e children can develop their talents more fully. Having multiple means of engaging with material, 2e students can determine the best strategies and methods that help them learn and reach conclusions.

Products: Multiple Ways to Demonstrate Knowledge and Understanding

Some teachers depend on student products to evaluate their achievement of learning goals. To determine fully if students have mastered or grasped a concept, skill, or level of understanding, teachers need to allow 2e students multiple ways to demonstrate their knowledge. Students who know how to think through and deeply understand the assessed material outperform students who are taught only to repeat concepts (Jerald, 2006). While it is helpful to teach some general test-taking strategies, building student knowledge and skills on content is more productive than teaching to the specific format of assessment.

The goal of the 2e teacher should be to help students learn the material so well that when students can demonstrate their knowledge and receive feedback, they can transfer their knowledge and skills to the assessments. Asking students to demonstrate their recently acquired knowledge and skills in a variety of ways allows students to more fully reflect on their learning and will ultimately help the 2e student, and their teacher, have better results on assessments.

Teachers of 2e students will want to provide choices and options to students in a variety of ways to express and communicate their learning. According to the principles of Universal Design for Learning, it is important to provide alternative modalities for expression, both to level the playing field among learners and to allow the learner to appropriately (or easily) express knowledge, ideas, and concepts in the learning environment. These choices can include:

- Use of multiple media for communication. This can include the use of text, physical manipulatives, social media and interactive technology, and open-ended solutions to problems. For example, teachers can use quizzes, models, or oral presentations as options for an end-of-unit assessment.

- The use of tools, accommodations, and strategies that can help in the construction and composition of task demands. These can include:

  o Technology such as spell-checkers, calculators, predictive text, and text-to-speech programs

- Sentence starters and menus
- Web-based applications such as wikis, blogs, clickers, or discussion boards that allow for reflection and engagement

- The use of scaffolding as students practice and demonstrate skills independently. These tools can include:

- Models

- Peer and adult tutors

- Feedback that is targeted at specific skills

Care should be taken to ensure students are provided choice in their assignments and that they are asked to self-evaluate their own progress and learning according to a set of expectations. By providing autonomy and self-reflection, teachers assist 2e students in reflecting on their level of mastery, the amount of learning growth they have achieved, and the types of communication that can help students achieve their goals.

Resources
This resource guide provides only an introduction to the depth of materials that are available to teachers of twice-exceptional students. When selecting materials, it is useful to follow the model of selection to determine if a particular strategy or material would:
- develop a talent, interest, or strength area;

- provide access to the advanced materials or concepts being taught;

- provide multiple means of presenting content or concepts;

- provide multiple strategies for students to engage with material and use varied thinking skills; and

- provide multiple ways for students to demonstrate their knowledge.

There are multiple sources for additional ideas for strategies, including resources from Montgomery County, Maryland; Colorado Department of Education; Fairfax County, Virginia; and Bridges Academy in Los Angeles, California.

For additional information, ideas, or strategies, you can refer to the following materials, in which many have been developed for the teaching of twice-exceptional learners:
- 2e News

- Bridges Academy: K-12 School and Graduate School

- Colorado Department of Education- Twice-Exceptional Students Level 2: Establishing an Educational Plan

Curriculum for Gifted Learners
Some curriculum units designed for gifted learners include:
- Curriculum units endorsed by the National Association for Gifted Children

- Autonomous Learner Model Resource Book

- Gifted Lesson Plans endorsed by the Davidson Academy for Gifted Learners

- Gifted Curriculum Enrichment Resources endorsed by Hoagies Gifted Education

- The M3 Curriculum Units from the University of Connecticut

- [Curriculum ideas and books from Free Spirit Publishing](#)
- [Curriculum units produced by Routledge, formerly Prufrock Press](#)
- [Curriculum units produced by Royal Fireworks Press](#)
- [Curriculum units produced by Kendall Hunt](#)

[Graphic Organizers for Different Kinds of Thinking](#)

[Instructional Models for Gifted Learners](#)

[Interest-A-Lyzer](#)

[Montgomery County Twice-Exceptional Resources](#)

[Positive Psychology Emotional Regulation Worksheets](#)

[Taxonomy of Human Emotions](#)

[Universal Design Guidelines](#) CAST (2018). Universal Design for Learning Guidelines version 2.2

[University of Kansas Strategic Instruction Model](#)

[Name It to Tame It](#)

[Emotional Wheels](#)

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Appendix A

Samples:

Language Arts Lessons for 2e Students in Elementary, Middle, and High School

Elementary Example: But Wait, That's Not All! Comprehension of Non-Fiction Texts

Lesson designed for a classroom with a 2e student

Virginia Standards of Learning
3.6 The student will read and demonstrate comprehension of non-fiction texts- Draw conclusions, using the text for support
Extension to:
4.6 The student will read and demonstrate comprehension of non-fiction texts- Explain the author's purpose

Lesson Objective
- (Grade level) Students can identify main idea of a piece of non-fiction with supporting details.

- (2e) The student can identify if a piece is providing information, explaining a process, or persuading.

Lesson Resources
- Original Billy Mays- Oxiclean

- The Very Best of Billy Mays

- Vince Offer- Sham Wow

- NewsELA

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Opening/ Beginning/ Anticipatory Set (2 minutes)	The teacher will provide a clip of Billy Mays, the "King of the Pitch." What can you conclude about this product? What is this commercial about? How do you know?	Ask questions related to purpose: What does he want you to do as a result of this pitch? Is he selling or explaining? Does he want you to do anything or know something?	Provide a graphic organizer in which options to be circled include: • Provide information • Explain a process • Persuade you to do or believe something

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Middle/ Instruction/ Connection/ Guided Practice (10 minutes)	Clarify that non-fiction writers are trying to communicate information to the readers. Emphasize that the writing is about facts and real things, not imaginary stories. Provide numerous examples of each type: What can you conclude about this product or event? What is the main idea? How do you know? What details can you provide?	Describe purpose of writing is to: • Provide information about an event or thing- WHAT it is? • Explain HOW to do something • Convince WHY should you do or believe something	Scaffolding- I do Present information in a handout or visual power point. Provide Total Physical Response options so that students make a hand motion for WHY, another motion for HOW, and a third motion for WHY.

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Middle/ Student Work Focus/ Independent Instruction (10 minutes)	Provide a choice of materials for students to work with: • Children's non-fiction article • YouTube clip of Vince Offer (Sham Wow guy) • Newspaper article • Visual ad • Radio ad clip What do you know about this event or product? What is the main idea that the author wanted you to know? What information were you given?	Non-fiction article related to interest of student Ask them to classify each piece of evidence as: 1. Information (What) 2. Process explanation • (How) 3. Persuasion (Why)	Scaffolding- We do Multiple modality of non-fiction material Highlighters for highlighting information Graphic organizer to write down pieces of evidence
Closure/ Ending/ Culmination/ Formative Assessment (15 minutes)	Pick a topic of interest to you and think of what you would want your readers to know. What details can you provide? Create a graphic organizer that would share with everyone about that thing or event. Briefly share with the class.	Create either an ad or a "How To," or a description for your product or activity	Scaffolding- You do Graphic organizer with main idea and details

Middle School Example: Who Says? Comparing Primary and Secondary Sources in Research Writing Lesson designed for a classroom with a 2e student

Virginia Standards of Learning
7.9 The student will find, evaluate, and select appropriate resources to create a research product- Analyze and evaluate the validity and credibility of resources (emphasis on Analyze)   *Extension to:*   *8.9 The student will find, evaluate, and select appropriate resources to create a research product- Evaluate and analyze validity and credibility of resources (emphasis on Evaluate)*
Lesson Objective
• (Grade level) Students can analyze how primary source differs from a secondary source.   • (2e) The student can evaluate the strength of information between a primary source and a secondary source.
Lesson Resources
• Library of Congress Collections   • History Detectives   • Primary Source Analysis Tool

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Opening/ Beginning/ Anticipatory Set (10 minutes)	The teacher will provide a clip of "History Detectives: A Piece of Hollywood." 1:17 p.m. - Why do you think he thinks it might be a piece of the original sign? How can he find out? 1:32 p.m. - What were they looking at to show differences? 11:00 a.m. - What else could it be? 11:16 a.m. - What did they use to prove what he had?	Ask questions related to purpose: What is good evidence that they show? What evidence is not good or does not prove what he thought it was? What data does he use?	Provide a graphic organizer in which students classify what they are watching: • Evidence • Prove • Disprove • Don't Know
Middle/ Instruction/ Connection/ Guided Practice (10 minutes)	Clarify that primary sources are original to the time and reflect authentic perceptions and information. Model and describe how to use the Primary Source Analysis Tool.	Emphasize that bias or misinformation can be found the further away an occurence is from the facts or from the time. Describe how important it is to know the author or the creator of the piece.	Scaffolding- I do Present information in a handout or visual power point. Use examples of photos, films, maps, and/or recordings in addition to writings.

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Middle/ Student Work Focus/ Independent Instruction (10 minutes)	Have students go to the Library of Congress, and use the Primary Document Analysis Tool to review four documents from the archives: • American History • Newspapers • Maps • Audio Recordings • Photos, Prints, and Drawings They should use the Primary Document Analysis Tool to analyze the items they find.	Have the student look up primary sources of a person or event that interests them. Ask them what the purpose of the piece was and who was the author or originator? What were they trying to do?	Scaffolding- We do Multiple modality of non-fiction material Graphic organizer
Closure/ Ending/ Culmination/ Formative Assessment (15 minutes)	Pick a topic of interest to you and share what you learned about that material. Create a graphic organizer that would share with everyone about that thing or event. What do we look for in a primary document? What information can we get from primary documents *that* we cannot get from secondary documents? Briefly share with the class.	Emphasize how primary documents can solve problems. How was your document used? What was its purpose? What problem might your document help solve? How might people use this document in the present?	Scaffolding- You do Graphic organizer with main idea and details Present either through a power point or a verbal retelling or a visual.

High School Example: Holding Out for a Hero: How did Wat become Arthur?
Reading Lesson designed for a classroom with a 2e student

Virginia Standards of Learning	

Virginia Standards of Learning

10.4 The student will read, comprehend, and analyze literary texts of different cultures and eras- Critique how authors use key literary elements, including… archetypes
Extension to:
11.4 The student will read, comprehend, and analyze literary texts of different cultures and eras- Critique how authors use key literary elements, including… archetypes within and across texts

Lesson Objective
- (Grade level) Students can analyze how the archetype "hero" is explored in various British literature stories.

- (2e) Students can analyze how the archetype "hero" is explored in various stories of King Arthur.

Lesson Resources
- Sword in the Stone clip

- Joseph Campbell's Heroic archetype

- Double Bubble worksheet

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Opening/ Beginning/ Anticipatory Set (5 minutes)	The teacher will provide a clip of The Sword in the Stone from the Disney version. Is Wat a hero? What did he have to do to become a hero? Did he choose to become a hero, or was it something that happened?	Ask questions related to other versions of King Arthur: How is Wat different from typical "heroes" or a story? How is Wat different from what we think about King Arthur?	Provide a graphic organizer in students describe what they think a hero is. Draw a picture of a typical "hero."
Middle/ Instruction/ Connection/ Guided Practice (10 minutes)	Explore Joseph Campbell's Heroic archetype Link to modern examples- Star Wars, Marvel Universe, etc. Play the song "Hero" by Family of the Year Emphasize that heroes are sometimes not the biggest, bravest. But they are on a journey where they save, help others	How is Arthur the "ultimate" hero? Was Arthur a hero to everyone? Why or why not?	Scaffolding- I do Present information in a handout or visual power point. Use examples of heroes in songs and films in addition to stories.

	Activity	Strategies to Increase Difficulty/ Promote Area of Strength	Strategies to Increase Access
Middle/ Student Work Focus/ Independent Instruction (30 minutes to several days)	Have students work with a group who reads the same book on King Arthur and find examples of the following: ☐ Unusual birth ☐ Journey ☐ Supernatural help ☐ Special weapon ☐ Wound ☐ Return	Have the student work with a team of gifted students who all read different books to compare Arthur across stories: "Once and Future King," "L'Morte D'Arthur," "Mists of Avalon," the movie How is Arthur's "heroicness" different in the different stories?	Scaffolding- We do Graphic organizer for comparison – Double Bubble or Venn Diagram Have the 2e student read the first half of "The Once and Future King" or watch a show of the King Arthur story- "Merlin" or the play "Camelot"
Closure/ Ending/ Culmination/ Formative Assessment (15 minutes)	Have students share examples of "heroes" they can think of in other stories or shows. What is the journey the hero goes through? What makes a hero? If you were writing the latest Marvel Universe, what kind of hero might you write? Describe your hero to us.	Ask questions about how the same hero in different stories can be alike and different. What makes a hero? What is another way you can tell the Arthur story? Is Harry Potter a retelling of Arthur? Why or why not? How could you tell a modern Arthur story?	Scaffolding- You do Graphic organizer Present either through a power point or a verbal retelling or a visual.

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