

Exploring Mars Mysteries in NASA Photographs: Could Some Images be Animal Skeletons?

Laura Meyer, Rob Griffin, and Dan Butler
University of Northern Iowa

Abstract

The NASA photographs containing what appear to be animal skeletons have created a mystery that remains unsolved today. Because they generate questions and inquiries in many arenas, the animal skeleton pictures were used to help gifted students critically think about how these structures were created. Several additional exceptionalities common in most groups of students, including attention deficit disorder with and without hyperactivity and difficulties in executive functioning, were addressed through the lesson design. The exceptionalities were addressed through methods that could be used in any classroom while using the Mars Animal Skeletons to motivate and engage students. Incorporation of teaching strategies to accommodate these exceptionalities allows delivery of an engaging lesson that meets the needs of all learners.

Key Words

De Bono CoRT thinking skills, executive functioning, attention deficit disorder, attention deficit hyperactivity disorder, twice exceptional gifted, arts integration.

Journal of STEM Arts, Crafts, and Constructions
Volume 3, Number 1, Pages 78-92.



The Journal's Website:

<http://scholarworks.uni.edu/journal-stem-arts/>

Introduction

Critical thinking is an essential skill for all students to be able to partake in and be successful within a variety of situations. Certain activities lend themselves more to this process than others. Thinking about the anomalies in National Aeronautics and Space Administration (NASA) photographs of Mars that resemble animal carcasses or skeletons provide a unique topic for practicing critical and creative thinking.

Literature Review

Best practices teaching involves researching the content to be taught and practices for the learners to be engaged with the content. Using current, authentic topics that naturally lend themselves to inquiry are an effective way to motivate students, especially gifted students who revel in the mysterious and are anxious to delve into solving problems (Flack, 1991). The possible presence of Animal Skeletons on Mars is such a topic.

The literature review presented here first addresses the mysterious images of possible animal skeletons in photographs of Mars taken by NASA. Then, to elucidate the design of this practical lesson for gifted learners with Attention Deficit Disorder, a brief review of that literature is provided. Finally, gifted learners who have difficulties in Executive Functioning are discussed. Each of the reviews of disabilities provides pedagogical strategy details that help break complex and critical thinking lessons into segments for all learners.

The Mystery of Animal Skeletons in Mars Photographs

On November 26th, 2011 NASA launched a rover to Mars called Curiosity. The rover landed on Mars on August 6th, 2012 to begin its mission. The primary purpose of the rover was to find evidence that life could be supported on the Red Planet. The Curiosity Rover cost 2.5 billion dollars and weighed 2,000 pounds. The rover was equipped with tools such as high-resolution cameras to take pictures. In addition to cameras, the rover was also equipped with drills that could collect samples from the soil showing chemical make-ups to provide evidence of water (NASA Science Beta, 2011).

In 2013, the rover bored 2.5 inches into the Mars surface to collect the first ever soil samples collected from a neighboring planet (Wall, 2013). The rover sent information about the gray powder from the first drill samples back to Earth. These samples contained essential elements considered to be fundamental elements for supporting life (Howell, 2013). The gray clay-like soil sample from Mars suggested it may have been collected from an area that may have once been an "aqueous environment such as a lake since the PH levels were neutral and not too salty" (Wall, 2013, p.11). This evidence suggests that Mars may have supported microbial life billions of years ago.

The high-resolution cameras produced pictures that provided evidence of features similar in appearance to

streambeds on Earth (Howell, 2013). "Just seven weeks after Curiosity touched down, mission scientists announced that the rover had found an ancient streambed where water once flowed roughly knee-deep for thousands of years at a time" (Wall, 2013, p.7). This discovery from Gale Crater does not prove there was life on Mars; however, it does show it would have been possible to support life at one time (Howell, 2013). On the 109th day of its mission, Curiosity Rover took dozens of photos of the Gale Crater area from an ancient dry lake that provided photographic evidence of possible life forms. The public was alerted to the existence of these photographs through a web posting titled, "Fossilized spines and vertebrae of big creatures in Curiosity Sol 109!" (The Above Network, LLC, 2017a). See Figure 1 for images from the NASA photograph (JPL/NASA, 2012a). In Sol 109 camera images, 141 and 64 there were what appear to be fossilized bones that look similar to spines and vertebrae that may have originated from creatures swimming in the lake years ago (The Above Network, LLC, 2017a). Figure 2 shows another NASA image of a possible animal carcass or fossilized skeleton. These lines of evidence support the notion that life was possible on Mars and photographs of the former lake bed in Gale Crater indicate possible fossil skeletons. Are these objects in the pictures previous aquatic creatures that once swam in this lake?

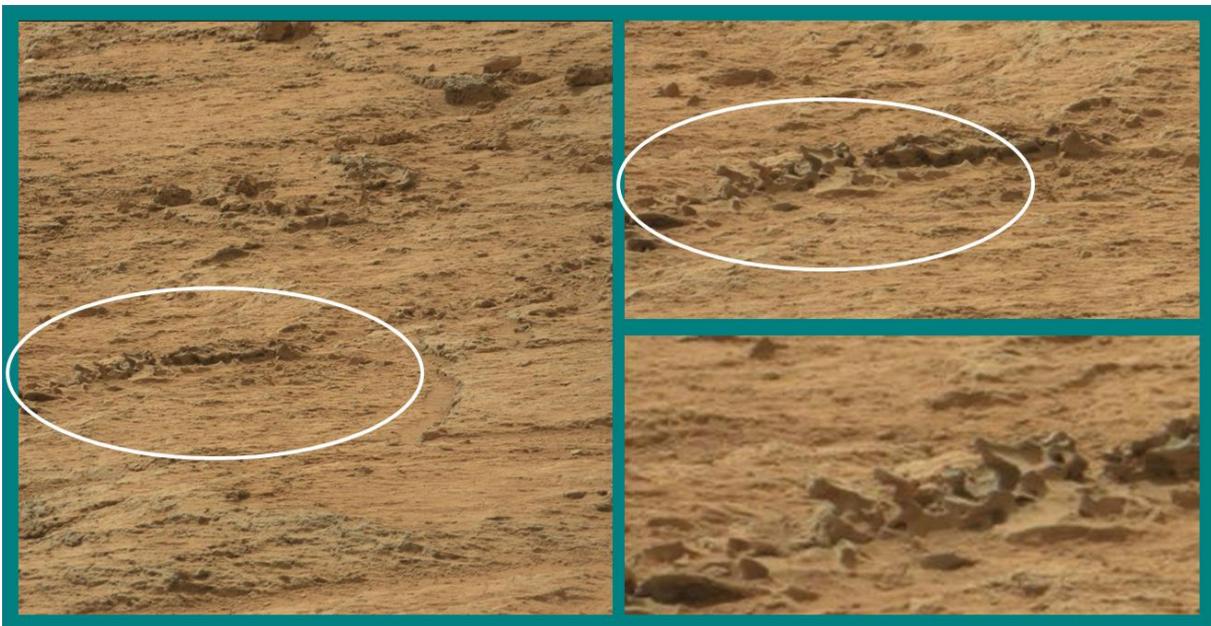


Figure 1. The left image shows the large photograph taken by Curiosity Rover on Sol 109. The upper right image is an enlargement of one area of interest; the bottom right image shows further enlargement of this area. The objects in the photograph resemble a fossilized spine. Image Courtesy NASA/JPL (JPL/NASA, 2012a).

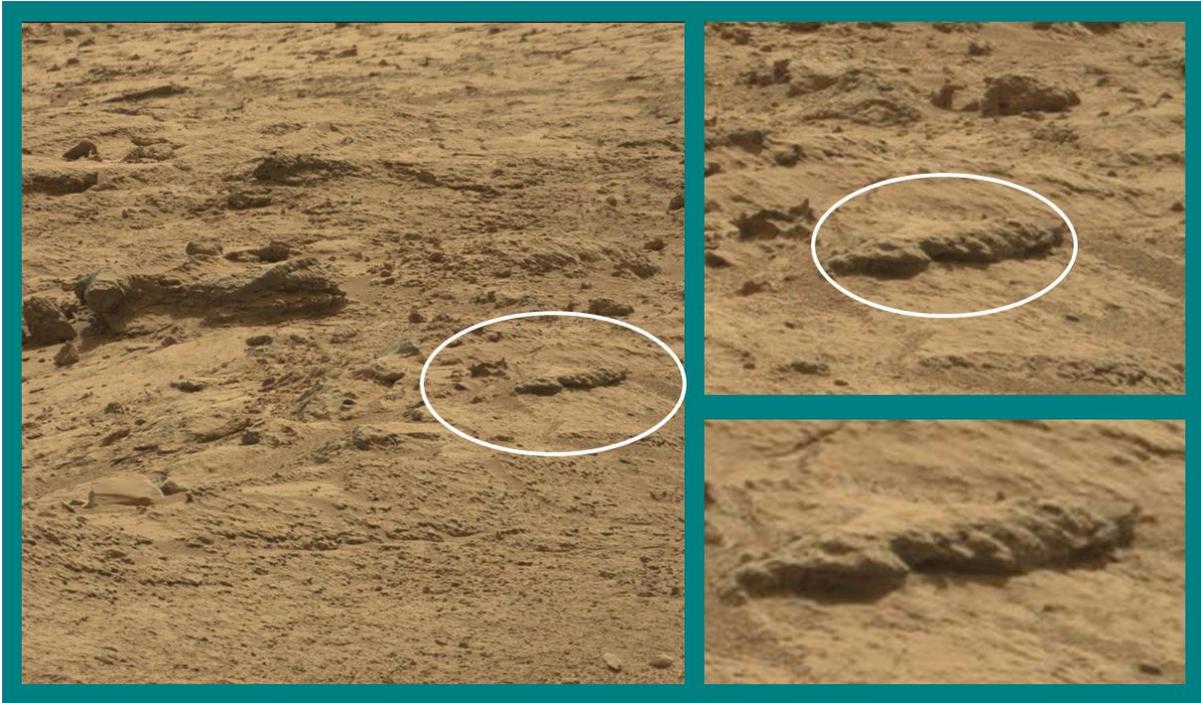


Figure 2. The left image shows the large photograph taken by Curiosity Rover on Sol 64. The upper right image is an enlargement of one area of interest; the bottom right image shows further enlargement of this area. The objects in the photograph resemble a fossilized alligator carcass showing skull and ribcage. Image Courtesy NASA/JPL (JPL/NASA, 2012b).

Gifted Learners with Attention Deficit Disorder with or without Hyperactivity

Many students who have been identified with Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder (ADD/ADHD) have difficulty complying with the academic and behavioral settings of school (Grizenko, Dong Qui Zhang, Polotskaya, & Joober, 2012). The occurrence of these disabilities is high with 3-5% of the general school population being identified (Harlacher, Roberts, & Merrell, 2006). To meet the varying needs of all learners, classroom teachers must have instructional strategies in place to maintain effective routines. "Such classwide interventions are more cost-effective and efficient than individualized interventions because a teacher may use the intervention to help one student perform better in the classroom, but its use may benefit the performance of all students in the class" (Harlacher et al., 2006, p. 6). These strategies are divided

into two categories: behavioral interventions which target items like "off-task behavior and difficulty staying in one seat" and academic interventions which target deficits like "lower academic performance, lower rates of task completion, and accuracy" (Harlacher et al., 2006, p. 7). Many different strategies such as monitoring time-on-task with appropriate feedback for success and providing natural breaks and transitions during the lesson can be used for class-wide interventions as they benefit all students. According to a meta-analysis of studies on teaching strategies for ADHD students in a regular classroom from 1970 through 2013, the most effective categories strategies were consequence-based and self-regulation strategies (Gaastra, Groen, Tucha, & Tucha, 2016). This finding often pushes the teacher to be clear with his/her instructions and provide references to the time that will be spent on particular parts of the lesson. Because this requires organization, the strategy requires a

well-thought-out plan and specific steps that need to be carried out. Doing this planning makes the teacher be explicit while providing scaffolds and supports that are helpful to all students. According to the meta-analysis, these strategies are also effective in improving the behavior and academic outcomes of the rest of the class (Gaastra, et al., 2016). Even though these strategies are time-expensive in the beginning, they will require less time as students adjust to the expectations of each strategy and more structure will be provided to the lesson as needed by students.

The most widely used intervention is contingency management (Harlacher et al., 2006). Contingency management involves providing the specific expectations and then giving rewards based on student likes and needs that have been identified through student feedback (Brock, Grove, & Searls, n.d.). This type of intervention requires the teacher to put a tracking system in place around the expectations that have been agreed upon. The teacher and students can provide cues to appropriate actions during this system. A timeline should be provided with the expectations that outlines length of time for any aspect of the process as well as when the reward will be provided. This provides all involved with a finite focus on both time and the expectations. This strategy appears to have a positive effect on both behavioral and academic outcomes (Gaastra, et al., 2016). This strategy takes time to set up and has several essential elements. Those key elements include clear expectations, use of tokens to reward meeting the behavioral expectations, and a transparent system of token-reinforces exchange (Harlacher et al., 2006). For these strategies to work effectively, a strong tie to Positive Behavioral Interventions and Supports is recommended (Harlacher et al., 2006). Positive behavior supports are used to move behavior toward the expectations of a system. It is similar to contingency management with using expectations and rewards; however, Positive Behavior Interventions and Supports are typically used across a system with many stakeholders using the same expectations and rewards for a grade or school population. According to

Harlacher et al., (2006), providing one-step clear directions for the age- and level- appropriate activities, reducing possible distractions, allowing the students to choose the seating arrangement, and capitalizing on student strengths, are the important elements of the primary levels of support.

The purpose of using class-wide interventions is time efficiency to help students with ADHD without singling out or stigmatizing these children. Every decision should be made based upon balancing data-informed decisions, social validity, contextual fit, cultural factors, and teacher and child preference (Harlacher et al., 2006).

Gifted Learners with the Second Exceptionality of Poor Executive Functioning Skills

Executive functioning is a necessary piece of the day-to-day movements of any person in society. In particular, executive function allows us to function at times automatically. The three foundational aspects of executive functioning skills include working memory, inhibitory control, and cognitive flexibility (Center on the Developing Child at Harvard University, 2014).

Every person can improve their ability to use their executive functioning by practicing using these skills. Executive functioning benchmarks have been identified by grade level along with ways to assist students in meeting them. In the lesson presented here, the planning process is facilitated by providing an outline for students and helping them create a plan for success. The lesson provided activities that lead to preferred levels of executive function overall by having art and instructional materials organized to allow for maximum instructional time and success for all learners.

The Lesson

Throughout this lesson, the goal was to expand the students' thinking about the Mars Mysteries of the skeleton-like images that were taken by the Mars Curiosity Rover. The students expanded their thinking through the use of three of



Edward de Bono's critical thinking skills: "Guessing," "Rules," and "Plus, Minus, Interesting." These skills helped students gain thoughtful insights into the lesson's content. Embedded into the lesson was an art project in which students were asked to design T-shirts related to the Mars Mystery of animal skeletons. The art project helped students engage in critical thinking and construct personal meaning through their learning (Education Closet, 2010-2017).

Participants

Twenty-one adult participants (14 White, 4 Black, 3 Asian; 11 male, 10 female) with a mean age of 39 years engaged in the lesson activities. These participants were high-achieving adult doctoral students, and many had been previously identified for gifted education during their K-12 schooling. This lesson was designed to help meet the needs of gifted students with Executive Functioning difficulties as well as Attention Deficit Disorders/with or without hyperactivity ADHD. Data were not collected concerning these disabilities, but it is likely that there were individuals in the sample in which one or more of these were present.

Learning Intention and Success Criteria

The learning intention for this lesson was to have students participate in collaborative conversations and use the de Bono critical thinking strategies and skills to deepen their thinking about the Curiosity rover's images. As a result of this learning intention, we first expected students to demonstrate their skills by applying the de Bono skills of Guessing, Rules, and Plus, Minus, Interesting. Secondly, we expected students to apply of these skills, which allows students to gain deeper insights into the Mars image. Finally, students were expected to participate in collaborative conversations throughout the lesson, and create a t-shirt design to raise money for a Mars journey.

Materials

The materials needed for this lesson were: electronic slides presenting NASA photographs of the animal skeleton anomalies and other slides used to guide the lesson Mars Mystery Project Graphic Organizer, T-shirt design graphic, self-stick notes, and markers or colored pencils.

Grouping

For this lesson, it is important to group the students at tables with about three to four students. This grouping allowed collaboration and deepening of students' insights during the lesson activities. The teaching and working segments were made shorter and manageable for students with the two disabilities the lesson was designed to accommodate.

Exceptionality Accommodations

To help meet the needs of students with Attention Deficit Disorder with or without Hyperactivity, the following strategies were used: brief, clear, written and verbal instructions; art activities that involved movement; hands-on and kinesthetic activities; frequent breaks; a setting with minimal distractions; and on-task, focusing prompts. To accommodate students with Executive Functioning difficulties more extensive projects were divided into smaller sub-projects; a timeline was created and followed, and deadlines were set for the student to complete each task. The parts of the lesson and the approximate times were outlined, so the students recognized the larger picture of the project and students received a graphic organizer to structure their ideas.

Lesson Introduction

Students were shown a video titled, "Launchpad: Curiosity goes to Mars" (NASA eClips™, 2017), which provided valuable background information about the Curiosity Rover mission on Mars. After the video, the instructors showed two pictures (Figure 3 and Figure 4) of skeleton-like

objects that were taken with the high-resolution cameras that were on the Curiosity Rover.



Figure 3. This image was taken by Mastcam: Right (MAST_RIGHT) onboard NASA's Mars rover Curiosity on Sol 109 (2012-11-25 23:09:56 UTC) Courtesy NASA/JPL (JPL/NASA, 2012c).



Figure 4. Image taken by Mastcam: Right (MAST_RIGHT) onboard NASA's Mars rover Curiosity on Sol 64 (2012-10-10 17:01:03 UTC). Courtesy NASA/JPL (JPL/NASA, 2012b).

Guessing: The First de Bono Critical Thinking Skill Addressed

After seeing the pictures from the Mars rover, students were asked to guess what they thought the first image (Figure 3) resembled and the evidence that might

indicate this. Students recorded their answers in a graphic organizer as seen in Figure 5. The same questions were also posed for the second picture and students recorded their answers in the graphic organizer provided.

Guessing

Picture #1

What does this look like to you?

What animal does this look?

--	--

What evidence might you have that could prove this?

Figure 5. Part of the graphic organizer related to the de Bono thinking skill "Guessing."

Rules: the Second de Bono Critical Thinking Skill Taught

After making guesses and talking with their table groups, students were asked to record responses to this question, "Which guess at your table did you think was the best guess for each object?" Students recorded these answers on the graphic organizer in Figure 6.

Students were then asked, "What two Rules or Criteria did you use to decide what a good guess was?" This time, students recorded each of their two rules on self-stick notes (One rule per self-stick note). After the students were finished writing, the instructor asked students to take turns

sharing the rule each had used and then place it on the board. If other students had a similar rule, they also placed their sticky note on the board, so all the students with similar rules were grouped together. After all students with that rule finished, the instructor asked for another rule to place on the board. Again, all other students with this rule also placed their sticky notes on the board in the same grouping. This process continued until the student's rules were on the board and grouped by category of the rule.



Rules

Which guess at your table did you think was the best guess?

Object #1 Best Guess

Object #2 Best Guess

--	--

What 2 Rules or Criteria did you use to decide what a good guess was? In other words, why was it the "best" guess or what make a guess "good?"

Write 1 Rule/Criteria per sticky note.

Figure 6. Part of the graphic organizer related to the de Bono thinking skill "Rules."

Art Project:

Arts are widely recognized for facilitating intrinsic motivation in students as well as multisensory engagement (Booth, 2013) and increase student focus and attention (Posner & Patoine, 2010), which is particularly important and helpful for student with ADHD. To expand the students' understandings of the Animal Skeletons Mars Mystery, the instructor told the class they would be taking a trip to Mars and needed to raise money (pretend of course!) To raise funds, the class would be selling T-Shirts. Students would be creating a design for a T-shirt that would advertise Mars Mysteries. Students were each given a T-Shirt outline and time to design and color their T-shirts. After the students completed their projects, tables voted on their favorites. The favorite from each group was placed in front of the room. The whole class then voted on the favorites in front of the class until an overall favorite was chosen for the whole class.

Plus, Minus, Interesting-3rd de Bono Critical Thinking Skill

Finally, to conclude the activity, students were asked, "What did you like best about your t-shirt?" and "What did you not like about your t-shirt?" The final question to which students were asked to respond was, "What new insights do you now have as a result of this Mars Mysteries Lesson?" Students once again recorded their answers in the graphic organizer provided which is seen in Figure 7.

Plus, Minus, Interesting

Plus: What did you like best about your t-shirt?

Minus: What did you not like about your t-shirt?

Interesting: What insights do you now have as a result of this Mars Mysteries Lesson?

Figure 7. Part of the graphic organizer related to the de Bono thinking skill "Plus, Minus, Interesting."

Results and Discussion

The collaborative conversations that developed from the Guesses and the Rules were powerful in stimulating ideas as students prepared to create their t-shirt design. All students were working toward a logical, well-thought-out design based on the observed table conversations. All participants worked hard to create a t-shirt design that was built for a fundraiser. Many of the conversations that were happening were based on what would be most pleasing to a purchaser of the shirt.

Results of the Guessing Thinking Skill Activity

The majority of the participants (18 of 21) saw something with a bone structure when they looked at this picture. See Table 1. This finding shows that many of our participants have similar backgrounds or experiences with an image similar to this. As the question, "What does this look like to you?" is extremely basic, the guesses made likely demonstrate similarities among the participants. Figure 8 shows students involved with the Guessing thinking skill activity.



Figure 8. Participants engaged in the Guessing think skill work.

Table 1. Analysis of Responses to Guessing Object #2: “What does this Look Like to You?”

Category	Frequency
Fish/Sea animal	7
Skeleton	7
Other Animal	4
Grass	1
Rock	1
Sugar Crumbs	1

Results of the Rules Thinking Skill Activity

Consideration of student responses concerning the “Rules” related to “What made a good guess?” revealed a larger variety of ideas amongst the participants. Some participants were operating with logic while others generated ideas that stemmed from their background knowledge. Another large group of participants marked creativity as an important aspect of rules. See Table 2. This finding demonstrates the ability of participants to choose which category, more than others, influenced their decision. T-shirt designs seemed to evolve from the rules that were considered most important by a particular group of participants. Figure 9 shows participants placing their rules, written on self-stick notes, on the classroom whiteboards.



Table 2. Participant Responses to Rules: "What Made a Good Guess?"

Category	Frequency
Reasonable or logical	13
Similar to Earth artifacts	9
Creative	8
Explains pattern	2



Figure 9. Participants categorizing their rules during the lesson.

Results of the T-shirt Design Art Project

Students created a design for a T-shirt that would advertise Mars Mysteries. Figure 10 shows students designing their Mars Mystery T-shirts. Figure 11 shows some example designs being voted on with tally marks. Many clever

and creative T-shirt designs were made as shown in Figure 12. Several of these have humorous sayings; they all show effective color schemes. Figure 13 shows additional humorous or romantic emotional sayings, some showing parodies of popular slogans





Figure 10. Participants designing T-shirts.



Figure 11. Example T-Shirt designs being voted on with tally marks.



Figure 12. Example T-shirt designs showing creativity. The top left t-shirt shows humor by saying, “Mission Mars Space Edition” on the front and “No Fast Pass Required” and “The Ultimate Thrill Ride” on the back. Crossed out is a “Mission Space Epcot” ticket. The top right t-shirt jokes that the wearer is “Bad to the Bone.” The bottom left t-shirt reminds the viewer that “Life is next door – Go to Mars.” This t-shirt showed pleasing color blending. The bottom right t-shirt shows one of the skeleton carcasses coming to life with the humorous comment, “And You thought life on Earth was Tough!”



Figure 13. Additional t-shirt designs showing creativity. The top left t-shirt, labeled, "Headed to Mars," shows one of the animal carcass "heads," a play on words. The top right t-shirt expressed the romantic sentiment, "You are Amazing even on Mars..." The lower left t-shirt was the overall winner of this lesson and features cut-off sleeves. The humorous front states, "The only crayons I need are the Red, White, and Blue!" then, "Make Mars Great Again!" a parody of a presidential election slogan. The lower right t-shirt also has a parody of a popular slogan: "Can't Keep Calm I'm Heading 2 Mars."

Results of the "Plus, Minus, and Interesting"

Thinking Skill Activity

As indicated in the charts below, students enjoyed the color and the unique designs best from their t-shirts. Only two students indicated a personal meaning from their t-shirts. Refer to the charts below to see the full results from the plus, minus, interesting thinking skill from Edward de Bono.

Table 3. Plus: "What did you like best about your T-Shirt?"

Category	Frequency
Colorful	5
Design	5
Slogan/Message	4
Appeals to buyers	3
Glitter	2
Personal Meaning	2

Table 4. Minus: "What did you not like about your T-Shirt?"

Category	Frequency
Design	6
Too Simple	4
Other-Specific to T-Shirt	4
Not Creative	2
Not Enough Color	2
Poor Drawing	2
Takes too Long to Dry	1

Using the "Interesting" part of the Plus, Minus, Interesting thinking skill allows you to see the differences in the participants' approaches to a challenging problem-solving activity based on their responses. The greatest number of



respondents expressed wishes to find ways to improve their T-shirts, a focus on growth. The next-highest number of respondents admitted that the activity was harder than they thought in relation to producing a quality product.

Table 5. *Reported Interesting Aspects: "After thinking about this activity what insights do you have?"*

Category	Frequency
Ways to improve T-Shirt	7
T-Shirt Designing is difficult/challenging	5
Educational activity	3
Life on Mars possible	3
Fun to go to Mars!	2
Many signs of animals similar to Earth	1

Conclusion

This lesson was enjoyable to teach and well received by the learners as indicated by the data collected. Learners were exposed to three of de Bono thinking skills of "Guessing", "Rules", and "Plus, Minus, Interesting," which organized knowledge and generated cognitive activity. The "Guessing" skill and the graphic organizer designed to teach this skill provided additional clear step-by-step instructions and highlighted the important components that the students needed to pay close attention to (i.e. resemblance of a known object/creature, resemblance of an animal, and evidence to support the guess). The "Rules" skill and the appropriate graphic organizer facilitated students' metacognition through causing them to evaluate and identify their best guess and provide support for their best idea/guess. The results of the activity involving the "Rules" skill provided an insight into the core sources or categories of ideas the students generated as well as demonstrated how the students can assess their own thinking. The art activity, combined with the "Plus, Minus, Interesting" thinking skill and appropriate graphic organizer

resulted in a multitude of creative ideas for a t-shirt fundraiser and a thorough critical evaluation of the student t-shirt designs that resulted in students generating ways to improve their creations. Based on the participant performance and reactions to the lesson, the three de Bono Thinking skills used in this study provided additional scaffolding, structure, and assistance in organizing their thoughts and ideas and were helpful for the students with ADHD, ADD, Executive Functioning difficulties as well as the general student population. Accommodations were made to address the unique learning needs of all students.

Teachers' Reflection

Several occurrences during the lesson prompted insights from the teachers. The first was the ability for all adults to respond quickly to students considering the exceptionalities of our class in this situation. As the data was examined, it was important to determine whether the interventions worked and then why they did or did not. Our exceptionalities require all parts of the lesson to be crisp and time-bound which means that time needs to be a significant part of what is displayed.

Knowing that an implication for this to be successful is student engagement, it is necessary to ensure the students have an interest in the topic. If they have a genuine desire to learn, all other aspects of learning will be accelerated. Another implication would be the importance of explaining what the students are doing and using feedback to support consistency around the lessons.

For future work, we start with the same sort of framework but allow the students to make some more free choice around the use of the content and strategies shared. This would push the collaborative conversation among tables up to a new level as the facilitator does some teaching of background information first.

References

- Booth, E. (2013). A recipe for artful schooling. *Educational Leadership*, 70(5), 22-27. Retrieved from <http://www.educationallleadership->



- digital.com/educationalleadership/201302/?pm=2&u1=friend&pg=24#pg24
- Brock, S. E., Grove, B., & Searls, M. (n.d.). ADHD: Classroom interventions. In A. S. Canter, L. Z. Paige, & S. Shaw (Eds.), *Helping children at home and school III: Handouts for families and educators*. Bethesda, MD: National Association of School Psychologists. Center on the Developing Child at Harvard University. (2014). *Enhancing and practicing executive function skills with children from infancy to adolescence*. Retrieved from www.developingchild.harvard.edu.
- Education Closet. (2010-2017). *Why integrate the arts? 5 compelling reasons to use arts integration in schools*. Retrieved from <https://educationcloset.com/why-arts-integration/>
- Flack, J. (1991). Sherlock Holmes meets the 21st century. *Gifted Child Today Magazine*, 14(4), 15-21.
- Gaastera, G. F., Groen, Y., Tucha, L., Tucha, O. (2016). The effects of classroom interventions on off-task and disruptive classroom behavior in children with symptoms of attention-deficit/hyperactivity disorder: A meta-analytic review. *PLoS ONE*, 11(2), 1-19.
- Grizenko, N., Dong Qui Zhang, D., Polotskaya, A., & Joober, R. (2012). Efficacy of methylphenidate in ADHD children across the normal and the gifted intellectual spectrum. *Journal of the Canadian Academy of Adolescent Psychiatry*, 12(4), 282-288.
- The Above Network, LLC. (2017a). Fossilized spines and vertebrae of big creatures in Curiosity Sol 109! *AboveTopSecret.com*. Retrieved from <http://www.abovetopsecret.com/forum/thread927601/pg1>
- The Above Network, LLC. (2017b). Fossilized Skeletons, Skulls, Fish, and a strange "W" on the horizon... from Curiosity. Retrieved from <http://www.abovetopsecret.com/forum/thread928969/pg6&mem=>
- Harlacher, J., Robert, N., & Merrell, K. (2006). Classwide interventions for students with ADHD. *Teaching Exceptional Children*, 6-11.
- Howell, E. (2013). *Mars Curiosity: Facts and Information*. *Space.com*. Retrieved from <https://www.space.com/17963-mars-curiosity.html>
- JPL/NASA. (2012a). Raw image Sol 109. Retrieved from https://mars.jpl.nasa.gov/msl-raw-images/msss/00109/mcam/0109MR0684021000E1_DXXX.jpg
- JPL/NASA. (2012b). *Raw Images - Mars Science Laboratory*. *Mars.jpl.nasa.gov*. Retrieved from https://mars.jpl.nasa.gov/msl/multimedia/raw/?rawid=0064MR0285030000E1_DXXX&s=64
- JPL/NASA. (2012c). *Raw Images - Mars Science Laboratory*. *Mars.jpl.nasa.gov*. Retrieved from https://mars.jpl.nasa.gov/msl/multimedia/raw/?rawid=0109mr0684022000e1_dxxx&s=109
- NASA eClips™ (2017). *Launchpad: Curiosity Goes to Mars*. Retrieved from <https://nasaclips.arc.nasa.gov/video/launchpad/launchpad-curiosity-goes-to-mars>
- NASA Science Beta (2011). *Mars Rover Curiosity Takes off*. Retrieved from https://science.nasa.gov/science-news/science-at-nasa/2011/26nov_msllaunch
- Posner, M. I., & Patoine, B. (2010). How arts training improves attention and cognition. In D. Gordon (Ed.), *Cerebrum: Emerging in Brain Science*. Washington DC:
- Wall, M. (2013). *Mars Rover Curiosity's 7 Biggest Discoveries (So Far)*. *Space.com*. Retrieved from <https://www.space.com/20396-mars-rover-curiosity-big-discoveries.html>

