Mr. Logic

- Mr. Logic likes Spot but not Rover.
- Mr. Logic likes this but not that.
- Mr. Logic likes height but not size.
- Does Mr. Logic like Ginger or Bridget
Creative or not creative?
(Starko, 2014)

Scenario 1
In the middle of a discussion on plants, 6-year-old Toshio raises his hand. “Do you think the plants would grow taller and stronger if, instead of watering them, we milked them?”

Scenario 2
Jane dressed for the first day of eighth grade in long underwear bottoms, a purple satin blouse, and grapes hanging as earrings.

Scenario 3
Maria wrote the best essay on federalism her teacher had ever seen. It was clear, well documented, and thorough, including implications of federalism seldom considered by high school students.

Creative or not creative?
(Starko, 2014)

Scenario 4
Eduardo’s first-grade class has been taught to subtract by taking away the designated number. Numerous manipulatives are available for students’ use. Eduardo refuses to use the method he has been taught. Instead, he uses his fingers to count up from the smaller to the larger number.

Scenario 5
Sam is wearing a baseball cap on hat day. Unbeknown to his teacher, he has installed a mirror under the brim. When the hat is cocked at the correct angle, he can see the desk next to his. This will be handy during the sixth period quiz.

Scenario 6
Karin has recently become captivated by the early TV series, Leave it Beaver. She frequently uses her journal to write new adventures of Wally, Eddie, and the Beaver.
Creative or not creative?
(Starko, 2014)

Scenario 7
Susan is asked to illustrate a scene from the biography of Frederick Douglass her second grade teacher is reading. Having heard that he traveled through England and Wales, she draws Frederick Douglass walking across a row of smiling whales.

How Creativity

1. Review of Guilford’s Components of Divergent Thinking: Fluency, Flexibility, Originality, Elaboration (FFOE)
2. Brainstorming
3. Practical Applications for FFOE and Brainstorming
Objectives
Teachers will be able to:

- Define Creativity
- Apply techniques that encourage creativity in students
Torrance Test of Creative Thinking

- Name all the uses for a brick:
  - A paperweight
  - A doorstop
  - A mock coffin at a Barbie funeral
  - To throw through a window
  - To use as a weapon
  - To hit my sister on the head with

FFOE

- **Fluency** – total number of uses found
- **Flexibility** – or different categories. In this case there are five different categories (weapon and hit sister are from the same general idea of weapon)
- **Originality** – how common is the use (vs. other people’s responses). For brick: “doorstop” (common) vs. “A mock coffin at a Barbie funeral” (disturbingly original?)
- **Elaboration** – amount of detail (e.g. “a doorstop” vs. “a door stop to prevent a door slamming shut in a strong wind”)
Torrance Test of Creative Thinking

Complete the drawing:

[Images of drawings]
Response to Prompt: Imagine History Had Taken a Different Path

What if the ratification of the nineteenth amendment did not pass and women were never given the right to vote? What would life for women, like me, be like in the United States? For one thing, I probably would not be writing this essay. If women were not given their right to vote, I probably would stop going to school after this year and it would be unlikely that I would receive a college education. Without suffrage, my career options would be limited, if a career were a possibility at all. My accepted practices would be limited to staying home and taking care of the family. Rather than being equals, women would be subservient to men. I might not drive, I might not dress in the way in which I choose to, and I might not be able to live my life the way that I can in the twenty-first century.
Response to Prompt: Imagine History Had Taken a Different Path

If the Trojans had heeded Laocoon’s advice and thrown Odysseus’ wooden horse into the sea, they would have defeated the Greeks at Troy. Aeneas would then never have had reason to flee the city, and he would never have ventured to Italy to found Rome. Without Rome, neither the Roman Republic nor a Roman Empire would have existed. Concrete, the arch, plumbing, and the sauna might never have been invented. The modern implications of Rome never having existed are indeed drastic. Lacking even concrete floors, people would resort to sleeping in the mud, and, without plumbing or saunas, they would be perpetually filthy and, generally, quite chilly. France could not have built the base of the Eiffel Tower without arches, so tourists would be unable to purchase miniature collectible Towers in Parisian convenience stores.

Brainstorming

Rules:
- Defer Judgment
- No Complimenting
- No Criticizing
- Avoid ownership of ideas
- Feel free to "hitchhike" on other ideas
- Wild ideas are encouraged

Think Time! No talking! No writing!
Levels of Brainstorming

Level 1
Name uses for...
- a paper clip
- a tennis ball
- an ice cube
- a baseball cap
- a shoe

Level 2
What would happen if...
- everyone looked exactly alike?
- no one ever smiled?
- there were no gravity in this room?
- no one told the truth?
- people never had to sleep?

From:
Marty Fligor, Brainstorming

Points
- Fluency Points: 1 point for each word that you listed
- Flexibility Points: Make 4 or 5 Categories (miscellaneous is not an option). Place the words or generated solutions into the selected categories. Deduct 1 point for each word that does not fit.
- Originality: 1 point for each unique answer
- Elaboration: 1 point for each elaborate answer
Example

What would happen if people never had to sleep?
- Mattress stores would go out of business
- People would not need caffeine
- People would not need pajamas
- People would work 24/7
- Electricity usage would increase
- People would have more hobbies

Categorize

- Mattress stores would go out of business (economy)
- People would not need caffeine (economy, health)
- People would work 24/7 (economy, health, leisure time)
- Electricity usage would increase (economy, environment)
- People would have more hobbies (leisure time, health)
CREATIVE STRENGTH IS ASSESSED IN TERMS OF NOVELTY, QUALITY, AND TASK APPROPRIATENESS;

Sternberg

Part 3: How Creativity

1. Guilford's Components of Divergent Thinking: Fluency, Flexibility, Originality, Elaboration (FFOE)

2. Brainstorming

3. Practical Applications for FFOE and Brainstorming
Cross-Curriculum Creativity Connection Fluency

- **Language Arts**: List words to describe a rainy day
- **Math**: Name ways to measure time
- **Social Studies**: List things your family can do on the weekends
- **Science**: List words that are related to space
Cross-Curriculum Creativity Connection

Flexibility

- Language Arts: How many words can you list that would replace the word said?
- Math: List things that can be measured
- Science: List many terms related to space
- Social Studies: List the many problems faced by a President of the United States

Cross-Curriculum Creativity Connection

Originality

- Language Arts: Develop a new ending for a favorite story
- Math: Pick your favorite number and describe it or illustrate it in an unusual way
- Science: Describe a new animal. Decide the advantages or disadvantages to humans
- Social Studies: Design an underwater home
Cross-Curriculum Creativity Connection

Elaboration

Language Arts: Create a tall tale
Math: Create different equations for the same number
Science: Create a list of words to elaborate on a concept, such as temperature
Social Studies: Elaborate on a familiar historical event

Eliminating “GOT”

For example, “I ‘got’ a piece of candy.”

GOT

Bought
Stole
Found
Was Given
Made

Fluency and Flexibility
Practical Classroom Applications
Fluency: Brainstorm words that can be used in place of “got”

- acquired, gained, obtained, procured, secured, won, derived, drew, took, realized, recognized, deserved, earned, merited, captured, occupied, caught, secured, contacted, reached, developed, sickened, accepted, apprehended, comprehended, conceived, fathomed, grasped, saw, sensed, understood, learned, mastered

<table>
<thead>
<tr>
<th>To come into possession of</th>
<th>To acquire as a result of one’s behavior</th>
<th>To perceive and recognize the meaning of</th>
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Mathematics

■ How many different ways can you write the number 3?
■ How many different ways can you make change for a dollar?
■ How many equations can you construct that equal 64?
■ How many ways can find the distance between two points?
■ Name ways to find the area under a curve.

How many different ways can you write the number 3?

■ $8 - 5 = 3$
■ $\sqrt{9} = 3$
■ $12/4 = 3$

Tres
Tre
Trois
Drei
Three
Flexibility and Math
The Story of Gauss

1 + 2 + 3 + ... + 98 + 99 + 100 = ?

But Gauss rearranged the numbers to add them like this:
(1 + 100) + (2 + 99) + (3 + 98) + ... + (50 + 51) = ?
(101) + (101) + (101) + ... + (101)
There are 50 pairs of numbers.
50x101 = 5050

Gauss, Cont.
For the Mathematically Precocious!

1 + 2 + 3 + ... + 99 + 100 = (100 + 1)*(100/2)
And 1 + 2 + ... + 199 + 200 = (200 + 1)*(200/2)

So 1 + 2 + ... + N = (N + 1)*(N/2)

1 + 2 + 3 + ... + 999 + 1000 = (1000 + 1)*(1000/2)
1001*500 = 500,500
“I am enough of the artist to draw freely upon my imagination. Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.”

~ Albert Einstein

Your Three Obligations

- Develop your talents
- Pass on what you learn
- Leave the world better than you found it
Enjoyment  
Engagement  
Enthusiasm

References


