

Michael Dean, Michael Hancock, and Tracy Townsend

Illinois Mathematics and Science Academy

Blowing Off STE(A)M: The Value of the Creative Arts for Gifted STEM Students

Teaching Materials & Assessments

IAGC Conference Presentation Materials: Blowing Off STE(A)M

Abstract:

The following is a collection of teaching documents, including classroom activities and assignment prompts, used in the Illinois Mathematics and Science Academy's Graphic Novels, Creative Writing, and Modern Theater classes. These materials are easily included in courses with broader topical focuses, however, either as single-day activities or units of study. The specific materials included here are especially beneficial as means of encouraging student creativity, building up a variety of communication skills, rewarding experimental work, and providing new outlets for critical thinking and social-emotional development.

Common Core Standards:

The materials provided here address the following Common Core standards:

Text Types and Purposes:

CCSS.ELA-Literacy.W.11-12.3

Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

Production and Distribution of Writing:

CCSS.ELA-Literacy.W.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Range of Writing:

CCSS.ELA-Literacy.W.11-12.10

Write routinely over extended time frames (time for research, reflection, and revision) and

shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Presentation of Knowledge and Ideas:

CCSS.ELA-Literacy.SL.11-12.6

Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

Procedure:

The documents which follow outline the procedures for each separately and specifically.

Materials:

The documents which follow specify materials needed on a case-by-case basis.

“Sudden Writing” Prompts for Creative Writing classes.

Use these kinds of prompts to start class sessions and loosen students up (you can find many more online). Typically five to ten minutes of silent writing on these sorts of prompts will yield fragments of writing students can share and discuss, thus giving them some practice in giving and receiving feedback. A useful approach to sharing writing, especially when students are new to doing so and likely self-conscious, is to let them choose, “Small, Medium, and Super Size” sharing.

Small Sharing: The student describes what they wrote about and what they wanted to do to the class, rather than reading their sudden writing.

Medium Sharing: The student chooses a favorite, discrete part of the text (a sentence or two, an image).

Super Size Sharing: The student reads their whole work to the class.

Telling students they need to share when called upon, but can choose the “size” of their sharing, helps break down their inhibitions over time without taking away options that can adjust the experience to their comfort level.

“What’s In the Box?” (read this passage aloud to students)

Imagine a character – any type of person, in any kind of world or situation you like. This character is coming home after a long day, which happens also to be the anniversary of them losing someone important to them. It might have been a death, a break-up or divorce, someone moving away. That’s up to you. As the character reaches their front door, they see a package waiting for them, unlabeled. What happens now?

“The following are the exact events of”

Read the statement above to your class, ending with a date of your choosing. Will it be the past? The far future? Tomorrow? Students start their writing with this sentence and date and carry on from there.

“I can’t remember...”

Useful for generating poetry and personal reflections, this prompt can help students get outside of their shell and unload a bit. Ask them to write so that every sentence begins with “I can’t remember...” and carry on as long as possible. Ideas can pile up logically, associatively, randomly.

“I’m writing you, Zeus, to request a promotion.”

Excellent for writing a stage monologue, this prompt asks students to imagine they are writing in voice of a character who is a god of something extremely minor in a pantheistic religion. Say, the God of Hand Sanitizer, or Goddess of Tumblr Memes. This character is tired of their work and ready to move on up to a better job assignment. This is their plea for a promotion to their divine superior.

“Me, Myself, and I”

Ask students to write the words “me, myself, and I” in columns on a page. Below each, have them write words, phrases, and ideas that describe these variations on how they see themselves. Do they see themselves differently, depending on the context they’re in? Depending on who is seeing them?

Lawnmower Man (read this aloud to students)

Your character wakes up one morning and discovers grass growing out of their arm. Are they dismayed? Curious? Frightened? Pleased? What happens next?

Modern Theater / Performance Prompts

Similar to working with students in creative writing, learning to accept sharing your work with an audience can be an uphill climb for some students. It is, however, important to challenge students to “try themselves out” this way. Typically, hilarity does a lot to make students embrace the work of acting, and develop an understanding of what it involves.

Do You Want Fries With That?

Ask for (or recruit) a volunteer from the class to sit in a chair at the front of the room. Get other students (four or five would be a good number) to queue up at the side of the room, waiting to take turns sitting in a chair set perpendicular to the first student’s chair, some feet away. The idea is to set up a visual roughly like the student in the perpendicular chair being in a “car” about to enter a fast food drive through.

Each student in the group waiting off to the side will get an index card with an identity or behavior tick you’ve chosen in advance. Examples could include “changes to a different accent with each sentence”; “is allergic to everything”; “is trying to use the drive through to pick up a date to prom”; “thinks the drive-through is a bank deposit drive-through”; and so on. One by one, the students at the side sit in the “car” chair, state their order as an aside while still some distance from the seated student representing the drive-through employee, and then “pull up” so they’re at the drive through window.

The customer student should try to convey their tick or motive or habit through their order and conversation, but not actually state what it is. The student at the window should do

their best to deal with the order normally, and also try to guess what's going on with their customer. You can cut off the improve dialogue at any point, if it's not working or has already demonstrated its point.

The David Attenborough

Two students are needed for this improv activity. One will be a person in their “natural environment,” going about some series of actions they choose. Maybe they are miming making breakfast, or taking a shower, or getting on the commuter train. It doesn't matter. The other student stands slightly off to the side and acts as a nature-program type narrator (like Sir David Attenborough) and comments on the observed students' actions with the kind of interest and intensity we associate with such hush-voiced programs. Both the pantomiming student and the nature program narrator student will have to balance between responding to one another's cues with forcing a change of actions by narrating or acting out something unexpectedly. You can let this go on as long as you care to. The objective is to get students talking about observation and “yielding” as important techniques for actors to learn as they work together to build a scene.

“We Interrupt This Program...”

Call a group of students up to the performance area. Set one student aside and give them something to hold – a dry erase board eraser, a computer mouse, an actual remote, whatever is handy – to represent a remote control. Line the other students up in front of their couch potato peer. The couch potato gets to point the “remote” at different students by turns, essentially changing the “channel” to whatever they decide to portray. When a student is pointed at with the remote, they step a little ahead of the rest of the line, and start to perform. Are they delivering a heartfelt telenovela monologue? Are they in the middle of a newscast? Are they a quarterback giving a post-game interview? A politician in a televised debate? A televangelist? A stand-up comic? As soon as the couch potato wishes, they can switch channels by pointing to another student. The prior student will step back, the new one will step forward, and the process continues. It's up to the students when they get switched back “on” if they want to resume their original program at a later point, or pretend they are an altogether different program. Like other activities, you can cut this off as soon as you feel it's value has been expended. It, too, is a variation on cueing and observation techniques.

Graphic Novels

Final Project: “Draw, You Varmint”

Assignment:

Using our readings and in-class cartooning exercises as a guide, make your own comic. You can write and draw on any subject you like, though I’ve listed suggestions below to get you started. The required length of your comic depends on whether you work with others (at least one page per group member, maximum of three students per group) or on your own (at least one page).

Whether you work with ink on paper or with computers (or both), you should produce a comic that can be reproduced clearly or posted online. Hand-drawn comics must be inked. Remember Brunetti’s five C’s of cartooning: calligraphy (line quality; clear and simple is best), composition (page layout and overall arrangement of panel contents to make visual and narrative sense), clarity (of narrative content, both words and images), consistency (of character appearance, for instance), and communication (all of the above working harmoniously together to achieve specific effects). Each comic will be accompanied by a written self-analysis from the creator(s) (at least 500 words). **Date due: Friday, December 16, by 4:30 PM.**

Ideas for Stories:

The Relationship Story

Draw a one-page story, with any layout and any number of panels that you wish. Include a title. Use black and white or color.

Your story should be about a relationship (yes, in the romantic sense). It could be about the beginning, middle, or end of a relationship (or all three), the lack of a relationship, a crush or unrequited love, a fantasy, a speculation, an anecdote about a past or current relationship, your general musings on love, or anything along these lines. Use your own experiences and observations (or even a story someone has told you) as a starting point, taking the narrative in whatever direction you wish.

The Seasons

Draw a one-page story (fictional or autobiographical), using any layout and any number of panels that you wish. Either horizontal or vertical format is OK. Include a title in the composition. Not counting black, white, and gray, use at least one other color. Use as many additional colors as you like, and apply the color(s) with whichever tools you feel comfortable.

Colors can represent emotional states as well as external phenomena, so create a story about the seasons, or whatever the word “seasons” evokes for you. Suggestions: capture a mood, a time, a transformation. If all else fails, write about today’s weather. What color is the sky right now? What does the air smell like? Is there a powerful memory that you associate with a specific time of year? Visualize it, and go from there.

A Dream

Draw a one-page story, using any layout and any number of panels that you wish. Include a title. Use black and white or color.

Of dreams, French cartoonist David B. writes, “I love their chaotic and poetic structure. I love their mysterious logic. I love their enigmas without solutions.” Retell one of your dreams. Include narration and/or dialogue to help us follow your dream’s logic and structure.

A Longer Story (team of two to three; two to three pages)

Working with up to two of your classmates, create a story of up to three pages in length (two for a pair, three for a trio) on any subject, drawn in any dimensions, in black and white or color, using any tools or techniques, with any layout you wish. This will give you the opportunity to consider the center spread as a potential composition, and the story as a whole as yet another level to the composition. The story could be fiction, nonfiction, biography, autobiography, journalism, or a genre of your own invention. See Ivan Brunetti’s recommendations on improvisation and invention in *Cartooning* (pp. 65-71). Each group member must contribute directly to the writing or drawing (penciling, lettering, inking, and/or coloring) of the final product. To that end, identify each group member’s role.

Evaluation:

Half of your project grade will depend on your comic itself. An “A” comic will show proficiency in all of the five C’s of cartooning and will avoid common pitfalls of cartooning (see Brunetti, *Cartooning*, p. 59). A “B” comic will be proficient in most of these areas but may display one or more pitfalls. A “C” comic or below will suffer from multiple deficiencies that significantly interfere with the reader’s comprehension. **Uninked hand-drawn comics will receive no higher than a B.** Remember that naïve or unsophisticated drawing can go a long way in cartooning. What you draw can be recognizable without being highly realistic. Stick figures are fine; see Randall Munroe’s *xkcd.com* for what can be done with them.

Your finished (inked or digitally rendered) comic will serve as the basis for a short (at least 500 words) **written self-analysis** of your work, which will constitute **the other half of your project grade**. Pairs and groups may submit a single paper. Look at your work objectively. Discuss your purposeful decisions about your drawing and writing; consider such elements as page layout, panel composition, design, characterization, dialogue, gestures, captions, word balloons, word placement, sound effects, line, shape, texture, etc. Identify where there is room for improvement or what you’d do differently if you had it to do over again. **Have a clear introduction with thesis, body paragraphs with topic sentences, and a conclusion.** I’ll be looking for cogent writing with effective organization that reflects a thorough understanding of how different parts of your comic work on their own and in combination. “A” papers will be fluent and will discuss with insight significant elements and their effects and areas for improvement. “B” and “C” papers will show lapses in the quality of writing and/or their demonstrated understanding of comics practice.