Why dread a bump on the head?

The neuroscience of traumatic brain injury

Lesson 7: What can we tell others about TBI?

I. Overview

The goal of this lesson is for students to integrate what they have learned about TBI during the unit and present an idea that relates to the treatment or prevention of TBI. As a class, the students contribute pages that review concepts from the unit in a class zine (pronounced zeen, as in ‘magazine’). A zine is a form self-publication with original text and images. Similar to a magazine, the topics are usually of a particular interest and the method of reproduction is via photocopiers. As a class, students will make a zine by compiling information from the Lesson Journal they fill out throughout the unit.

The lesson is done in two parts. In Part A, students are introduced to zines, and they spend time brainstorming what they want to include in their zine and how they will put it together. Students are then given time to develop their chapter of the class zine. Then, in Part B of the lesson, students evaluate their peers’ zine chapters by looking for content accuracy, clarity, and coherence of the ideas presented. In the end, the class can present their combined product to inform others in the school about TBI. The class can also go to a community event (on Brain Awareness Day, for example) to hand out their zines.

Connections to the driving question

In this lesson students answer the driving question by synthesizing the information they learned about TBI throughout the unit.

Connections to the previous lessons

Thus far, students learned about the neuroscience behind TBI and in the previous lesson about how to search for and analyze information about public perceptions of TBI and the occurrence of TBI in different populations. In this lesson, the students synthesize all that they have learned so far and present this information in a zine. Based on the previous lessons, students can draw on what they now know to decide on a target audience, what they are interested in, and how this relates to the information they explored throughout the unit.

II. Standards

National Science Education Standards
Content Standard F: Personal and Community Health
• Hazards and the potential for accidents exist. Regardless of the environment, the possibility of injury, illness, disability or death may be present. Humans have a variety of mechanisms—sensory, motor, emotional, social, and technological—that can reduce and modify hazards. (9-12 F: 1/1)
• Families serve basic health needs, especially for young children. Regardless of the family structure, individuals have families that involve a variety of physical, mental, and social relationships that influence the maintenance and improvement of health. (9-12 F: 1/6)

**Benchmarks for Science Literacy**
The Human Organism: Mental Health
• Biological abnormalities, such as brain injuries or chemical imbalances, can cause or increase susceptibility to psychological disturbances. (GF/H2)
The Human Organism: Physical Health
• New medical techniques, efficient health care delivery systems, improved diet and sanitation, and a fuller understanding of the nature of health and disease give today’s human beings a better chance of staying healthy than their ancestors had. (6E/H3a*)

### III. Learning Objectives

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Assessment Criteria</th>
<th>Location in lesson</th>
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<tbody>
<tr>
<td>Identify the risk groups and activities that may pose potential risks for TBI.</td>
<td>Students draw from previous lessons to identify risk groups and potential activities that could result in TBI.</td>
<td>Part A</td>
</tr>
<tr>
<td>Explain the causes and effects of traumatic brain injury (TBI) to family members, friends, and people in the community.</td>
<td>Students explain the range of causes of TBI and the variety of complex effects of a brain injury.</td>
<td>Part A</td>
</tr>
<tr>
<td>Design a page in a zine that incorporates past lessons and materials.</td>
<td>Students clearly synthesize and communicate relevant information they gathered throughout the unit.</td>
<td>Part A</td>
</tr>
<tr>
<td>Critically examine and evaluate peer work.</td>
<td>Students consider important elements of writing and presenting information in order to give constructive feedback to peers on their zine chapters</td>
<td>Part B</td>
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</tbody>
</table>
IV. Adaptations/Accommodations
This lesson can be differentiated for students according to their abilities. One example is allowing students to complete chapters of the zine individually or to work in groups. Outside of making a zine, ideas for alternative projects have also been included at the end of this lesson plan. However, these student-designed projects may take more time for the students to complete at home.

Safety
There are no additional safety concerns associated with this lesson.

V. Timeframe for lesson

Part A: Introduction to zines

Opening of Lesson
• Class discussion to introduce zines – 10 minutes

Main Part of Lesson
• Activity 1: Lesson Journal review – 10-20 minutes
• Activity 2: Zine chapter brainstorm – 20-30 minutes

Conclusion of Lesson
• Assignment to complete zine chapter draft – 5 minutes

Part B: Zine chapter peer review

Opening of lesson
• Review of main ideas of zine – 5 minutes

Main Part of Lesson
• Activity 1: Peer reviews – 20 minutes

Closing of Lesson
• Assigning task of finalizing zine chapters based on feedback – 5 minutes

Teacher Pedagogical Knowledge
In Part A, students learn about zines and begin working on their portions of the class zine. In Part B, they bring in their finished products and review each other’s work. Therefore, students need to be given time between Part A and Part B to develop their chapter of the zine. The amount of time given to students to complete this can vary; some teachers may choose to give students one or two class periods to work on their chapters in class or the task can be assigned as homework over a few days.
VI. Advance prep and materials

Part A: Introduction to zines

Materials:
- Examples of zines and magazines
- Copies of “Zine Chapter Template,” (U4_L7_StudentSheet_ZineChapterTemplate) one for each student
- Copies of “Zine Chapter Guidelines,” (U4_L7_StudentSheet_ZineChapterGuidelines) one for each student
- Copies of “Zine Review (Author),” (U4_L7_StudentSheet_ZineReviewAuthor) one for each student (homework)
- Completed Lesson Journals (students provide this)

Preparation:
- Make copies of documents for students (1 per student)
- Finding zine examples may be difficult. See Teacher’s Note below for tips.
- Ask students to bring their Lesson Journals to class.

Part B: Zine chapter peer review

Materials:
- Copies of “Zine Review (Peer),” (U4_L7_StudentSheet_ZineReviewPeer) two or more for each student
- Draft of zine chapter (students provide this)
- Completed “Zine review author,” (students provide this)

Preparation:
- Make copies of documents for students (1 per student)

Teacher Documents for Zine Making
- “How to Make a Zine” document (U4_L7_Resource_HowToMakeZine)
  - “Zine cover template” document (U4_L7_Resource_ZineCoverTemplate)
  - “Table of contents template” document (U4_L7_Resource_ZineTableOfContents)
- Advanced projects (at end of lesson plan)

VII. Resources and references

Teacher resources

Resources about zines:
• http://www.zinebook.com/directory/zine-catalogs.html

Brain Injury Association of America
• http://www.biausa.org/
• http://www.biail.org/
VIII. Lesson Implementation

PART A: Introduction to Zines

Opening of Lesson:
Ask students some questions about zines to see what they already know. Questions that can be used to guide the discussion include:

- What do you think a zine is?
- Have you ever made a zine before?

Hand out zines to groups of students to look at for a couple of minutes. Then ask students to share their opinions of the zines with the class.

- How is a zine different from a regular magazine?
- What do you like or not like about these zine examples?

Explain to students that they will be making a zine about TBI as a class. Each student (or group of students) will design two pages—across an inside fold—that will be compiled into a zine to be presented to members of the community, school, or whomever they choose, to educate others about TBI. Students will review the unit’s material by looking at their Lesson Journals they filled out as homework throughout the unit.

Teacher Pedagogical Knowledge
Where are zines? They can often be found at local bookstores or cafes, and sometimes libraries have zine collections (e.g. Galesburg Illinois Zine Collection). Zines are available to order online at many different websites, including http://www.MicrocosmPublishing.com. An incomplete directory of websites where you can find zines is available at http://www.zinebook.com/directory/zine-catalogs.html.

Main Part of Lesson:

Activity 1: Lesson Journal review
In this activity, students summarize information learned over the entire TBI unit in their own words by reviewing the lesson journals and identifying important points from previous lessons. They also evaluate unanswered questions from themselves and their peers.

To begin the activity, ask students to get into groups of four. Have groups go through their Lesson Journals and (1) write down important topics from each lesson that they would like to be included in the zine and (2) share their “challenge” questions with each other to answer. Walk around the groups and
help them answer any remaining questions students have about the unit material. Questions can also serve as ideas for additional topics that students may want to investigate for their zine chapter.

Activity 2: Zine chapter brainstorm
In this activity, students consider writing concepts such as “Who is our audience?” and “What tone should this zine be written in?”. They then creatively innovate and plan their zine with other students.

To begin, ask the class to share what they came up with during their lesson journal reviews. Write their ideas on the board as they share them until you have many ideas. In general, it is easier if ideas are as specific as possible, i.e. “how two neurons communicate with each other” as opposed to “how neurons work” or “functions related to the lobes of the brain” as opposed to “the parts of the brain.” This may help students visualize their chapters more easily.

Next, the class (or the teacher, ahead of time) should determine the structure of the zine. The zine can be easily differentiated. There are several ways to split up the work:

- The whole class works on one zine or smaller groups each make a zine.
- Students work individually on chapters or pairs or small groups each make a chapter.
- Groups are responsible for covering the whole unit or individual lessons.

Once the structure of the zine(s) is decided, students will choose or be assigned groups or topics for their zines. If students want to do a topic that was not part of the unit but related to TBI, it will work if there are strong connections to the material and if goals of the chapter are clear (for example, students might want to expand on the data they analyzed in Lesson 7).

Teacher Pedagogical Knowledge
Explore ideas of making zines or small books with students by looking through the Brooklyn.org website. An educational manual with instructions on different binding types and lesson plans for writing ideas can be found at http://www.booklyn.org/education/000240.php.

When the structure of the zine(s) is decided, ask the class or groups to address these questions about their zine(s) as a whole:

- Who is the audience?
- Where or how will we distribute the zine?
- How many copies will be made?
- What is the theme of the zine?
  - In addition to a TBI theme, the class can decide on additional themes like “prevention and treatment” or the chapters can be tied together with a common storyline progression.
Themes can also include elements such as a common placement of the title and author’s name, or handwritten text as opposed to typed.

- What do we want people to know?
- How can we portray this information?
- What will the tone be? (Silly, serious, informal, or a combination?)
- What kind of materials can we use to make the chapters?
  - Remember the chapters will be copied in black and white!

Next, students can brainstorm ideas for their chapters. Remind them that the information they want to portray should be specific and detailed. Students can write down their points or start filling out the “Zine chapter review (author)” document for guidance.

The following are some ideas to get started:

- Illustrations or informative drawings
- Comics or an illustrated dialog
- Poem or song lyrics
- Collages or “found object” collection
- Photograph of a sculpture they made
- **Advanced**: Mini interview of someone in the community (doctor, coach, etc.)
- **Advanced**: Expanded report of experiment or data analysis from previous lessons
  - Note: Students cannot simply repeat previous activities but must expand information into a novel and original idea; for example, finding new datasets to answer new questions or hypotheses. These activities may require more guidance and clear expectations from the teacher.
  - For more advanced projects not related to the zine, see the suggestions at the end of this lesson plan.

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**Teacher Pedagogical Content Knowledge**

To increase awareness of TBI, the Brain Injury Association in the state can be contacted through Brain Injury Association of America website (http://www.biausa.org/). For example, for the state of Illinois, the Brain Injury Association of Illinois (http://www.biail.org/) can be contacted to share ideas or discuss projects that students can do to increase TBI awareness in the community. In addition, TBI survivors can be contacted through this association and invited to the classroom to share their recovery process with students. Brain Injury of America website also has various resources such as posters, videos, information for educators as well as family and caregivers, information about concussion in sports, prevention, and rehabilitation.
Conclusion of Part A:
Hand out copies of the “Zine chapter guidelines,” “Zine chapter template,” and “Zine chapter review (author)” documents to students. Explain that as homework students will work on a rough draft of the zine chapter and will do peer reviews in class before completing their final zine chapter. If there is time, go over the tips in the “Zine chapter guidelines” document. Students are encouraged to meet outside of class to continue brainstorming and forming their chapter draft.

Teacher Pedagogical Content
The Zine chapter template is meant to be a resource for students to help them visualize the space they have to do their projects. The chapter does not have to be made on the template itself—it’s just a reference so students can visualize how much space they have to make the chapter and remind them of the elements that need to be included (title, their name, and the page numbers that will be added later. Students can be directed to pencil in margins on their draft chapters by tracing the chapter template.

For homework, ask students complete a draft of their zine chapter and the “Zine chapter review (author)” document. In the review portion, students should examine the educational value of their chapter. Some points that students can put down are

- Important vocabulary
- Informative pictures or graphs (and what information they portray)
- Specific facts or knowledge

Assessment
This is carried out in Part 2: Zine chapter peer review.

PART B: Zine chapter peer review

Opening of Lesson:
Briefly revisit the overall theme(s), goals, and/or storyline of the zine. This includes concepts like the intended audience and education goals (what do we want people to learn?) of the zine. Tell the students they should keep these themes and goals in mind when making and reviewing the chapters.

Explain to students they will be reviewing each other’s chapter drafts. They should first describe the intended information portrayed in their chapter. Then students will arrange their chapters and self-reviews on their desks and go to their peers’ chapters to evaluate how well their classmates portrayed their information.
Main Part of Lesson:

Activity 1: Peer reviews
In this activity, students have an opportunity to evaluate their peers’ zine chapters. They critically examine the material for clarity and practicality. They also evaluate the flow and connectedness of the storyline or theme.

First, hand out the Zine review peer documents for each student. If there is a storyline or some kind of logical flow to the chapters, it may be useful for students to formally review the previous and following chapters to their own. This may help students see how their chapter fits into the flow of the zine as a whole. It is recommended that students review at least two other chapters (5 min each), but more time can be spent so students can see more chapters.

When the reviews are finished, have students turn in the reviews to the author(s). Students will then compare their self-review to their peers’ reviews. This will help students establish whether the information they want to portray in their chapter is clear or correct. Students can write a formal paragraph comparing the reviews in class or for homework.

Conclusion of Lesson:
Ask students for general feedback about the zine. Tell students to use the feedback from their peers to make changes to their zine chapters for the final draft. Address any questions students have about their reviews.

Deciding on a title for the zine(s) or designing the cover(s) can be done if there is additional time.

For homework, students use the peer reviews to finalize their zine chapter. Additionally, students can turn in a formal paragraph comparing their self-review to their peers’ reviews (if not finished in class).

Teacher Pedagogical Knowledge

How to make a zine
When the students have completed their zine chapters, refer to the U4_L7_Resource_HowToMakeAZine document for a detailed explanation on how to make a copy proof for copying the zines. Other resources include instructions on how to make a Zine cover (U4_L7_Resource_ZineCoverTemplate) and how to make a Zine table of contents (U4_L7_Resource_ZineTableOfContents).

Advanced projects:
Given time and interest, students can do more in-depth projects to write a zine chapter about and/or present on the community day. The following are some project ideas that students may do:

1. Investigate and report social groups or activities that have a higher risk of TBI.
2. Design a poster about TBI and prevention and put them up at various places in the school or in the community.
3. Design a helmet and explain how it is effective in preventing TBI.
4. Develop a survey and interview the athletic coaches and/or the athletes at school regarding prevention and treatment practices as well as general awareness of TBI.
5. Design a caregiver guide or pamphlet for family members of those who have sustained a TBI; i.e. how TBI is treated, what to expect from a person with TBI, care giving tips on the long-term treatment.
6. Observe session(s) of a brain injury support group in the community and share their field notes by writing a report or presentation (similar to an anthropological field study or ethnography).
7. Investigate advances in medicine or new treatment techniques for the intervention of TBI.

Assessment
The self-assessment students complete via reviewing their feedback and their revised zine chapter can be collected for assessment purposes.