

CRITICAL THINKING

Assessment of Critical and Creative Thinking

These features of inquiry-based learning are challenging to assess. Examining student habits of mind is one approach for examining critical and creative thinking in classrooms. Successful learners incorporate these habits while unsuccessful learners do not. Habits of mind are “intelligent behaviours”: a repertoire of mindful strategies we use when faced with problems or decisions.

Indicators of Sound Thinking:

1. Perseverance
Do students give up or back up and use a different strategy if the first one did not work?
2. Decreased Impulsiveness
Do students blurt out answers and make many corrections in their written responses or do they pause before answering, making sure they understand the learning task and consider the responses of others in building arguments?
3. Flexible Thinking
Do students use the same approaches for different problems or do they use and weigh the merits of alternative strategies, considering the approaches of others, and dealing with more than one classification system simultaneously?
4. Metacognition
Are students unaware of how they learn or do students describe and reflect on the processes they used in learning?
5. Careful Review
Do students hand in uncorrected or unedited work as soon as it is done or do they take time to review and edit?
6. Problem-posing
Do teachers ask all the questions or do students ask increasingly specific and thoughtful questions such as those requesting data to support assumptions, questions proposing hypotheses, speculative questions and questions recognizing contradictions or discrepancies in the data?
7. Use of Past Knowledge and Experiences
Do students approach each learning experience as though it were unique or do they apply past experiences to present circumstances through analogies or references to previous experiences?
8. Transference Beyond the Learning Situation
Do students leave their scientific thinking in science class (math in math class, etc.), or do they apply it to learning experiences elsewhere in school or outside? Mathematics is surely a useful tool for analyzing data in Social Studies classes.

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9. **Precise Language**
Do students use nonspecific words and vague language or do they use increasingly precise, descriptive and coherent language?
10. **Creating, Imagining, Innovating**
Do students strive to find a different way to do something or do they limit themselves by saying things like, “I’m no good at art, math, etc.”?
11. **Listening with Understanding and Empathy**
Do students just say they listen or can they detect the emotions of the speaker through talk or body language? Can they recognize the point of view taken by another person through paraphrase and an accurate expression of another person’s feelings, emotions and perspectives?
12. **Gathering Data Through All Senses**
Are students aware of the sights, sounds, smells, tastes, textures and movement around them? Do they gain information through all of their senses or do they limit themselves; e.g., listen but not participate?
13. **Enjoyment of Problem Solving**
Do students recoil from problem solving, constantly seeking teacher assistance, or do they show enthusiasm and autonomy in pursuing problems and their solutions? Do class discussions take longer? If so, is this because students wander off topic or because they are more thoughtful and questioning?
14. **Curiosity**
Do students show interest in the problem or topic? Do they want to explore further? Do they view the world with wonderment and awe or do they shut themselves off from being passionate about the world around them?
15. **Taking Responsible Risks**
Will students stretch their thinking and live on the edge of intellectual comfort or will they recoil and settle for the safe and routine?
16. **Finding Humor**
Humor makes us human. Can students develop a “whimsical frame of mind” and look for contradictions, ironies, and absurdities in situations and in themselves or is their humor limited to destructive put-downs of others?
17. **Thinking Interdependently**
Do students actively listen to and consider other approaches to the problem or do they ignore the contributions of others?
18. **Remaining Open to Continuous Learning**
Can students avoid complacency and constantly strive for improvement in intellectual work as athletes and artists do in their fields?

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MINDFULNESS

Self • Other • Community

This interactive yet introspective workshop offers participants a wonderful step away from the bells, schedule and time crunches. Life moves quickly and when we work in schools, with hordes of young people milling about, needing our time or expertise, some mindful downtime can be just what the doctor ordered. Self-inquiry and practical exercises help foster an increased connection to our self, to the people around us, and to our community. This workshop offers your mind some respite from its daily thoughts and stresses.

The workshop will inspire participants to look inward with less judgment, with the intention of finding some peace of mind with a more positive, healthy outlook. It aims to connect people to their lives in a more profound way. Activities include: guided meditation; a presentation on mindfulness and how to truly calm the mind so that the body, and emotions will follow; and various methods of self-inquiry. The workshop will leave participants refreshed and inspired with helpful takeaways to continue the work in their daily lives.

Topics of inquiry:

THE SELF: Attaining essential knowledge through self-inquiry, meditation and discussion

THE OTHER: Breaking down our relationship/communication practices to improve on them

COMMUNITY: Developing our work environment to insure that everyone feels connected, safe and supported.

There are other habits of mind that teachers and students can use.

Alternative approaches towards developing Habits of Mind:

1. Dimensions of Learning Framework

<http://www.mcrel.org/programs/dimensions/whathow.asp> and Marzano (1992)

Marzano defines habits of mind as mental habits individuals can develop to render their thinking and learning more self-regulated. These mental habits include:

- Being aware of your own thinking
- Planning
- Being aware of necessary resources
- Being sensitive to feedback
- Evaluating the effectiveness of your actions

Marzano illustrates effective use of these habits through examples such as the following: " A student might develop a specific plan for an upcoming classroom project. Part of this plan would include identifying necessary resources and establishing milestones. As the student executes the plan, he might occasionally note whether he is getting closer or further from his goal and then make corrections as needed."

The most effective learners have developed powerful habits of mind enabling them to think critically, think creatively, and regulate their behavior.

Critical thinking:

- Be accurate and seek accuracy
- Be clear and seek clarity
- Maintain an open mind
- Restrain impulsivity
- Take a position when the situation warrants it
- Respond appropriately to others' feelings and level of knowledge

Creative thinking:

- Persevere
- Push the limits of your knowledge and abilities
- Generate, trust, and maintain your own standards of evaluation
- Generate new ways of viewing a situation that are outside the boundaries of standard conventions

Self-regulated thinking:

- Monitor your own thinking
- Plan appropriately
- Identify and use necessary resources
- Respond appropriately to feedback
- Evaluate the effectiveness of your actions

2. **Critical Challenges Model** offered by Case and Daniels (2003)

This model focuses on critical thinking and views the following as important habits of thoughtful people:

- Open-mindedness- Are students willing to consider evidence opposing their view and would they revise their view should the evidence warrant it?
- Fair mindedness- Are students willing to give impartial consideration to alternative points of view and not simply impose their preference?
- Independent mindedness- Are students willing to stand up for their firmly held beliefs?
- Inquiring / critical attitude- Are students inclined to question the clarity of and support for claims and to seek justified beliefs and values?

An added bonus to using Habits of Mind approaches is the integration with learning skills such as independent work, teamwork, initiative, work habits, and organization.

See www.tc2.ca for more on this approach.

If one goal is to view student growth while working in this project how do we see it? Here are two simple approaches using pre and post-test designs in which you assess before and after the study, and see changes in their attitudes or perspectives on an issue as a result of the learning. Thus these are tools for both formative (diagnostic) and summative assessment.

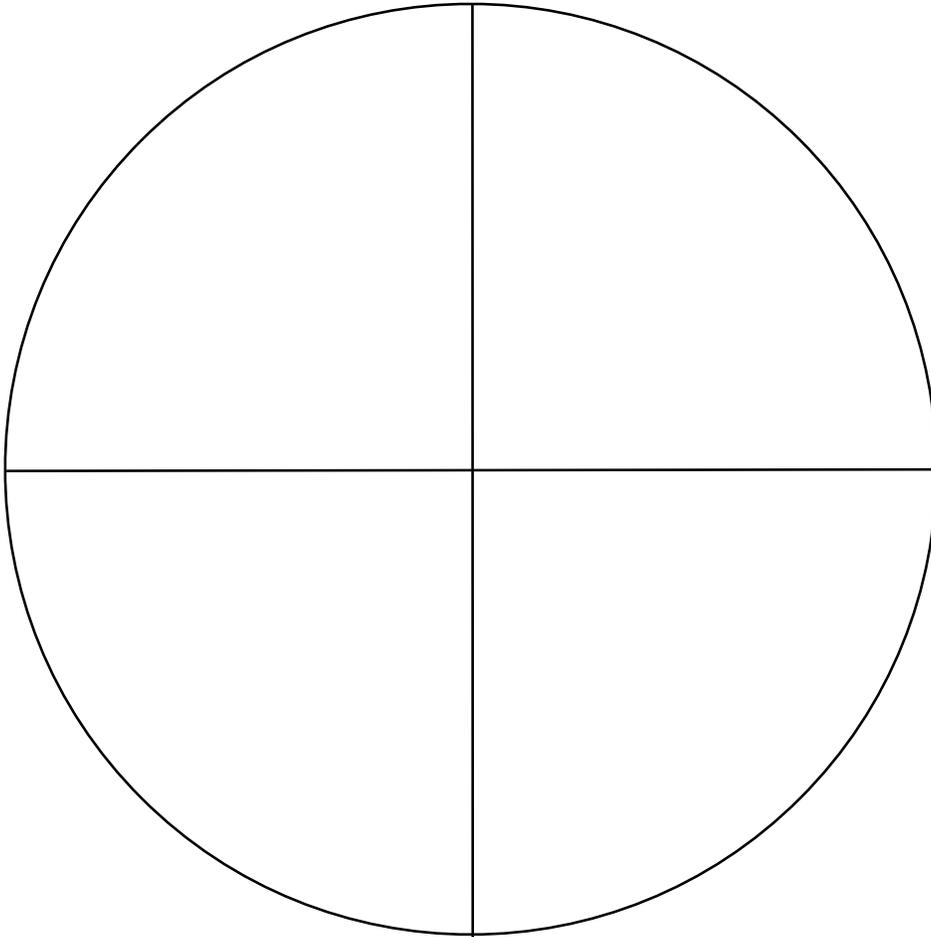
Teaching/Learning Strategies

1. **Reaction Wheel**

Here is a quick way to find out what students are thinking about a particular issue or what prior knowledge they might have about a topic to be explored.

- a. Form groups of 3-5 (the sample is for a group of 4) and give each group a wheel on an 8 ½" x 11" sheet of paper.
- b. Each member in the group of four picks a quadrant. Make sure all group members sit so they can write in their quadrant simultaneously.
- c. Tell the students "Write down your IMMEDIATE REACTION" to the word I give you in your quadrant. You will have only a few seconds to do this, so write quickly. You have ten seconds.
- d. Give students a prompt in the form of a word or phrase, or visual image after the instructions in #3.
- e. When time is up, have groups take a minute to share and compare reactions prior to a general class discussion.

Reaction Wheel 1



The word/picture we had to react to was _____

Our reactions had the following in common _____

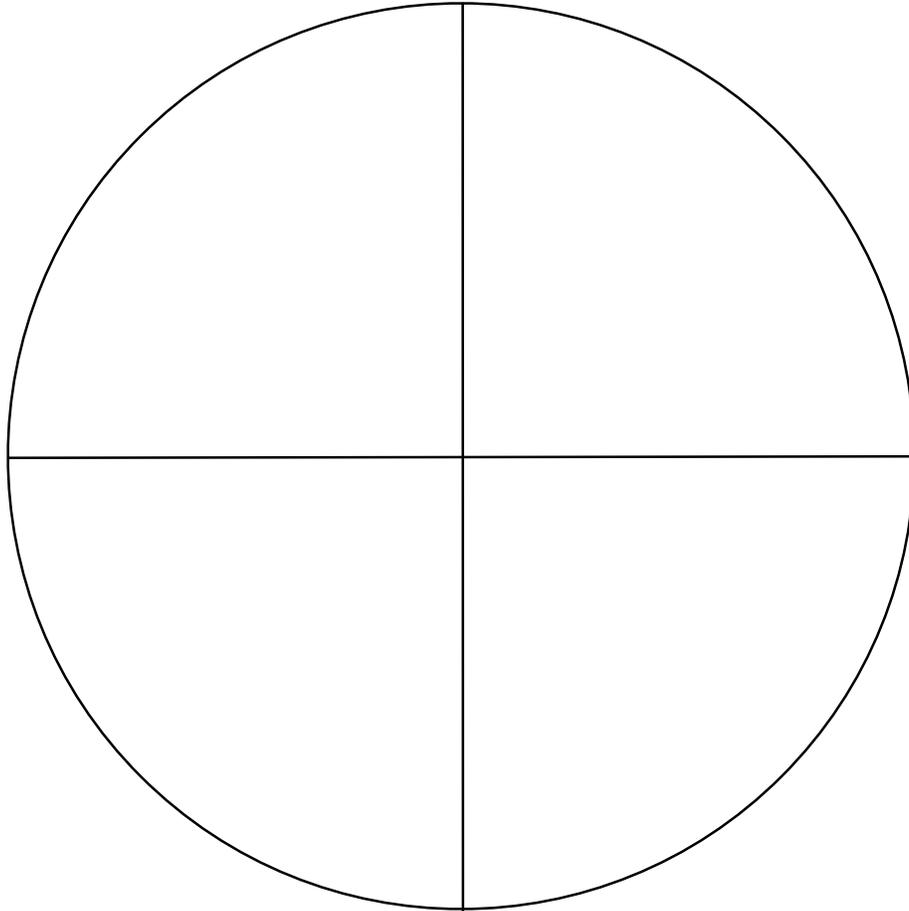
What does this tell us about our attitudes/feelings about the word or phrase mentioned?

Variation: Give 30 seconds to view and react to a picture or visual cue.

Version 2 Student Instructions

Within 30 seconds, write a word or phrase in each of the quadrants below so that all quadrants contain a different reaction. These reactions should represent the first four things that come to your mind when you react to what you are about to hear.

Reaction Wheel 2



What do the reactions have in common? _____

Form a pair with the person sitting beside you and exchange wheels.
Exchange wheels with another pair.

The wheel can be used for all topics. Here are the same sample prompts.

- genocide
- Holocaust
- refugee
- making a difference
- human rights
- photo of a Holocaust survivor in the camps in 1945

2. Four Corners

This activity can also serve to assess changes of mind on an issue.

A statement is read and students go to a corner of the room that represents their feelings on this statement (i.e. strongly agree, agree, disagree or strongly disagree). This could also be done using four items representing personal preference (i.e. favourite TV show). Or each corner could represent a metaphor. Students discuss their reasons with the others in their corners and then one spokesperson shares these reasons with the others in the class.

Benefits include:

- teaching students to appreciate other points of view
- tapping into intrapersonal and interpersonal intelligence
- providing a safe forum for individual expression
- practice in articulating their ideas and opinions.

Some examples include the following:

Read an article on bullying and use statements such as “Bullying is a learned behavior” or “The violence in our lives is one of the main causes of bullying today.”

Arriving in a new place is like _____ (provide four metaphors and students can choose).

Variations include:

- having students write the number of their corner BEFORE you give them the signal to move. This helps to avoid “me tooism” in which they go where their friends go
- allowing those unsure or disagreeing with the choices to move to the centre of the room; in this case they must come up with a perspective and explain it to the other corners
- after the initial discussion, students have an option to move if perspectives have been clarified in their own minds and they realize they picked the wrong corner to match their perspective.

3. Using Media Sources

Rightly or wrongly much of what we learn about current social issues such as those examined in the project come from exposure through the media: TV, radio, newspapers, blogs, etc. While some media accounts meet a high standard for accuracy, this is not consistent, especially when columnists and pundits promote a perspective based on a clear bias. This section helps students and teachers explore the media.

a. Newspaper Inquiry: Scavenger Hunt

The newspaper scavenger hunt is an excellent way to:

- introduce the newspaper and all its complexity and variety
- teach location and reading skills using the newspaper or other print materials

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- provide motivation for studying a particular topic
- test understanding of concepts
- teach group and/or problem-solving skills and
- diagnose student difficulties in reading, locating, and comprehending information through observing students at work.

Suggestions for Implementing Newspaper Scavenger Hunts

1. Groups of three or four per paper would be ideal.
2. Items for any scavenger hunt should force students to look in all sections of the paper.
3. Items may involve various levels of difficulty from vocabulary searches and conceptual understandings to making inferences and determining cause-effect relationships.
4. The hunt should take no longer than ten to fifteen minutes. Include from 10-20 items depending on the group.
5. Those who finish first should be encouraged to make up additional questions.
6. Discussion after the hunt should focus on the techniques used by the groups to complete their tasks.
7. Formative evaluation criteria in the form of teacher feedback and group self-evaluation can include:
 - » ease and quickness at getting to task
 - » methods of organizing to complete the task and
 - » roles assumed (leader, recorder, organizer, encourager)
8. Although students may get caught up in the competitive aspect of the hunt, it is important for them to recognize that co-operation within each group is the key to success.
9. Hunts can be used several times throughout a course with newspapers, book chapters or an entire textbook. Data can be collected using sheets such as the sample provided.

The following example can be used in Unit One on Human Rights:

Look through today's newspaper and locate the following items. Circle them with a pen or pencil. Be sure to indicate below the page on which each item is found. When you are finished, fold the paper back into its original form so that the teacher knows you are finished.

1. A story involving human rights _____
2. A photo of an event that involves a violation of a human right _____
3. A story about someone disabled being denied a service _____
4. A comic strip in which someone is discriminated against _____
5. An item about Aboriginals contesting a government decision _____
6. A court case _____
7. A story in the sports section in which someone is treated unfairly "in your opinion"

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8. A movie using a rights theme _____
9. An item featuring a complaint by a consumer _____
10. A story that mentions the Canadian Charter of Rights and Freedoms or the U.S. Constitution _____
11. A story about a person or group defending the rights of others _____
12. A story in which a municipal, provincial / territorial, or federal government defends a human right in Canada or elsewhere in the world _____

FINISHED FIRST? _____
 WHAT STRATEGY DID YOU USE TO WIN _____
 MAKE UP 3 MORE QUESTIONS. _____

If classroom groups have access to the internet they can do an online version of the hunt.

b. Newspaper Inquiry: Clipping Thesis

Much of what we know or learn about immigration and the role governments and citizens can play comes from the media. So it is important to learn how to analyze media treatment of any issue. A thesis is a statement about an issue supported by evidence and based on clear criteria. This can be made a component of the culminating end-of-unit task to be displayed or handed in or used separately if there is a current event that has attracted the class's interest.

1. Students either individually, in small groups, or as a whole class select a problem or current issue in Canada today they wish to explore (see snowball technique below).
2. They collect stories, pictures, or information, about the topic over a three or four-week period from the local newspaper or other media, including appropriate and online sources approved by the teacher. Some of the websites linked to the federal government such as Parks Canada, Statistics Canada, and the National Archives may also serve as media to investigate.
3. They prepare an analysis which might include such aspects as the following:
 - historical background to the issue (as reported in the newspaper and in the text),
 - the perspective(s) taken by the newspaper or other media examined,
 - a weighting of the different perspectives in order to arrive at a defensible conclusion on the issue in question.

The following are just some of the topics and questions that students may use for developing theses based on readings from the media exploring issues in global migration today (chapter five of the Immigration unit). In this chapter students can select a region or country in which migration seems to be in the news

Topic	Critical Question
The push factors	Why are people leaving a country or region?
The pull factors	What attracts refugees to a place? Are they making a permanent

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	decision to settle or do they wish to return to their home country when they can?
Political refugees	What causes the conflicts that push people from the countries of their birth?
Economic refugees	Do economic refugees looking for a better life deserve the same considerations as those fleeing oppression?
Climate refugees	Is there such a thing as a “climate refugee”?
Disaster migration	Are people in your selected area migrating in response to a natural disaster such as earthquake or flood?
Role of government	How easy or difficult is it for a government to follow its stated policies on who gets in and who is kept out?
The journey	What challenges face migrants travelling from one place to another?
Human smuggling	Why does this happen? What can be done about it?
Canada’s place	How can / should Canada respond to global crises that produce homeless groups?
Children as refugees	How significant an issue is the migration of children?
Refugee camps	Are conditions for refugees in these camps satisfactory?
Hot spots	What countries are the greatest sources of emigration? Why?
Refuge	What countries are the greatest sources of emigration? Why?
Host populations	How do citizens in countries receiving refugees respond to their arrival and settlement?
Canada, Australia, and the United States	How do these countries compare as “welcoming” places?

Other Possibilities for clipping theses sources

Some school libraries have signed on to databases of various news media, including newspapers, magazines, television, and cable news sources. Some are free of charge such as:

- » <http://www.onlinenewspapers.com> and
- » <http://www.thepaperboy.com>

The clipping thesis helps students go beyond the headline to trace the story. If the news story is the first draft of history it will not be the last.

Speaking of headlines, students can compare front-page coverage from a dozen Canadian newspapers and hundreds from more than fifty countries by checking <http://www.newseum.org/todaysfrontpages> daily from Washington’s Newseum. Since the front pages change daily stories can be traced and relevant events that are featured over time can be analyzed.

Online selection can be part of a “media file” to develop the clipping thesis. Here you might begin by working with your students to develop

- search techniques, in addition to just “Googling”
- questions for any online investigation or web quest
- criteria for evaluating the usefulness of the website itself.

c. Newspaper Inquiry: Target Day

Target Day is a skills-based current affairs lesson using newspapers and/or the Internet (see above links). The approach and skills are applicable to a variety of subject areas. It works as follows:

1. Set a Target Day. This could be a day at random or one around a specific event such as an election or an anniversary. The online version of Target Day assumes that students have access to computers and know how to search for specific information on the web. The online version of this activity can be completed in one seventy-five-minute class, including the research.

Note: Some online editions of newspapers are free, some are free with registration, and some charge for registration. Be sure to check the net before giving an online assignment (this advice goes for ALL online work).

If the assignment is based on headlines only, even papers requiring a paid subscription display headlines and selected articles.

2. The teacher organizes the class into equal-sized groups of three or four.
3. Students draw randomly for online versions of one of the following papers: (these are examples of Canadian online newspapers whose websites are substantial; there are many others.)
 - Vancouver Sun
 - Calgary Herald
 - Regina Leader-Post
 - Winnipeg Free Press
 - Ottawa Citizen
 - Montreal Gazette
 - Québec Le Soleil
 - Fredericton Gleaner
 - The Guardian (Charlottetown)
 - Halifax Chronicle-Herald
 - St. John's Telegram
4. Students locate the home page of their online paper and skim it.
5. Students answer questions about their paper's home page such as the following:
 - What are the main stories featured?
 - How many of these relate to local, provincial, national or international events?
 - How many of these stories relate to political events?
 - How many relate to non-political events?

In the case of Holocaust Remembrance Week, the questions may include:

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- How was it reported?
 - How much coverage was given?
 - What section(s) of the paper gave coverage to activities during the week?
 - How does the coverage of Holocaust Remembrance Week in your on-line paper compare to the coverage in your local paper.
6. As a whole class, students generate a set of categories for comparing the newspapers before discussing their answers for #5. Then, on a scale of 1 (totally different) to 10 (identical), students predict the degree of comparison among the papers across the country. Students must justify or explain their predictions. Finally, they put their answers for #5 either on chart paper or on the chalkboard so that the class as a whole can compare newspapers based on the contents of the on-line home page editions.
 7. Student groups compare and contrast their findings for all of the papers using the categories they identified. These should include:
 - similarities
 - differences and
 - regional or local “bias” of the stories
 8. Students judge the degree of comparison among papers on the 1-10 scale, compare this to their original predictions, explain why their predictions were correct or incorrect and account for any differences.

Teachers can conduct their assessments through observation and feedback on such criteria as:

- group-generated criteria for comparing papers,
- group summaries (on charts or the chalkboard) and
- quality of student analysis and reasoning.

Extension

Teachers may wish to have students extend this task by exploring the online paper, clicking on specific stories and reading them. When groups using different papers find common stories, they should extend their comparisons by answering the following questions:

- Which facts are used in each paper to express its point of view?
- Do these papers use the same facts or have they selected different ones?
- How can we explain the differences?

Modifications (Non-Internet Version)

Teachers could have students write a letter to other cities in Ontario, Canada or North America to obtain hard copies of their daily newspapers published on the Target Date. Students should, with teacher instruction, write proper business letters to the Circulation Manager or Educational Services Coordinator of their chosen paper. It is a good idea for them to include a loonie for shipping and handling costs. When the papers have arrived, each student can compare their papers’ coverage of the event under such categories as:

- headline and front page coverage,
- editorial and / or editorial cartoon coverage and

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- special features relating to the environment in general.

d. Newspaper Inquiry: Time Capsule

Create a Time Capsule to be opened 500 years from now.

Select 10 clippings from your newspaper that you think make an important statement about the way we live, our priorities, and what the main issues facing us. Place them in your Time Capsule. On a separate sheet of paper, write an explanation for each of your choices. In the case of our project examples could include

- current human rights issues in Canada
- activities during Holocaust Remembrance Week
- current event connected to global migration
- student actions to promote a better world