



Grade 4–6
Mathematics, Social Studies
Science and English Language Arts

Developing
Self-Esteem

Respecting
Diversity

Unit 10: BIG Feet

Lesson 1: Classroom Footprint!

Subject and Level

Grade 4 to Grade 6

Mathematics; social studies; science; English Language Arts

Outcomes from the Alberta Program of Studies, grade 4, have been identified. See below under *Subject and Level Learner Outcomes*.

Unit Objective

Through a variety of activities students will increase awareness and get a better understanding of how their actions (or inactions) may have a much greater affect on the larger world. Only through our awareness of the microsystem (ourselves) can we begin to positively affect the macrosystem (world).

Note: This unit should be introduced near the beginning of the school year so students have an opportunity to affect change and share acquired knowledge with others over an extended period of time.

Unit Time

This unit will take approximately 2 weeks to complete

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Lesson 1 Classroom Footprint!

Lesson Objective

This activity will kick off a classroom challenge where students will organize, plan and track changes of their individual global footprint. Students will become more aware of how much productive land and water they need to support what they use and what they discard. Students will compare Ecological Footprints to what other people use versus what is available on this planet.

Lesson Time

Approximately 2 class periods

✂ **Materials**

- Computers with internet access
- Blank paper
- Chart paper/felts
- Large blank paper for a classroom wall; meter sticks; pencils/erasers

Getting Started

Knowledge Now

Individual Activity:

Each student must identify *one* item that they believe symbolizes their quality of life. Students can create a mind-map with their symbol in the centre and their ideas for explanation around the perimeter. Many students may not feel comfortable creating a metaphor for quality of life. In this case, the teacher should *model* what is expected of the students through example.

Note: The teacher may wish to review the term *quality of life* - the degree of enjoyment and satisfaction experienced in everyday life as opposed to financial or material well-being.

Think-Pair-Share (partners):

Each person takes turns (1 minute each) explaining *how* their chosen item symbolizes their quality of life. After students have finished sharing their thoughts with their partner, each will share with the whole class *one* interesting point introduced by their partner.

Note: Feel free to extend the time for this activity if students show an interest.

Engaging Interest

Whole class discussion: (Teacher records results/information on chart paper)

- How many students believe that they have an above average quality of life?
- How many believe that their quality of life is below average?
- Is quality of life measured in the same way by all people? (Spend some time on this question and ensure all students participate)
- What factors can affect our quality of life? (This is a key question – teacher should encourage input from all students)
- Do we ever take for granted all that we have? Discuss
- Let's take a closer look at how our everyday activities compare to the activities of others.

Note: The teacher should take an active role in this discussion – sharing examples of 'taking things for granted.'

Learning Activities

Activity:

- How much "nature" does your lifestyle require?
- What does this mean to you? In small groups (approximately 3 students/group), students will examine *How much nature does our lifestyle require?*
- At this point in the lesson, students *may be struggling* due to a lack of knowledge. Have each group jot down their thoughts anyway and remind them learning begins with a question and a desire to discover.
- One person from each group will share their ideas with the larger class.

Activity: online

Students will examine how their *footprints* are left behind in terms of where they go and what they do.

- Each student takes the *Ecological Footprint Quiz* located on the Earth Day Network Site (see URL under *Supplementary Resources*. The quiz is based on national consumption averages and is meant to give you an idea of your Ecological Footprint relative to other people in the country you live in.
 - How many students are surprised by the results?
 - Go back to the group activity: *How much nature does your lifestyle require?* Does this question make more sense now?
- *Review* the purpose(s) of graphing or charting information (comparison; quick reference; visual). *Review* the different types of graphs: bar; pictograph; line. After the students have taken the *quiz*, the whole class will discuss how to illustrate the results.
- Create a large class graph representing: *Our Global Footprint* (Title)
 - Horizontal Axis (X-axis): Title: (name of school and class); identified along this axis should be *all students* in the class; the *Canadian Average (8.8 global hectares/person)*; the *World (1.8 biologically productive global hectares per person)*
 - Vertical Axis (Y-axis): Title: Total Footprint in Global Hectares; beginning at the vertex ('0' where the 'X' and 'Y' axes meet), count by '1's'. Make sure to identify decimal places. (eg: 0, 0.2; 0.4; 0.6; 0.8, 1.0; 1.2; 1.4; 1.6; 1.8; 2.0...10)

Assessment/Analysis

- According to the class graph, what is the number for the largest *global hectares per person*?
- What is the least?
- What is the *average* number for our class? (review)

Application

How many *Earths* would we need if everyone on our planet required this amount of space/nature?

Activities for Extension and/or Integration

- Students can create free verse poems re: taking our Earth for granted; North American greed; abusing nature;

Note: Multiple perspectives approach: religious (God's image?); spiritual (Aboriginal); Earth's perspective; possibly other living creatures...other?

Subject and Level Learner Outcomes for Subject and Level

Go to http://www.learning.gov.ab.ca/k_12/curriculum/bySubject/

Grade 4 Science

Specific Learner Expectations

Students will ask questions that lead to exploration and investigation

Reflect and Interpret

- communicate with group members, showing ability to contribute and receive ideas
- record observations and measurements accurately, using captioned pictures and charts, with guidance in the construction of charts
- state an inference, based on observations
- identify possible applications of what was learned
- identify new questions that arise from what was learned.
- communicate with group members, showing ability to contribute and receive ideas

Students will show growth in acquiring and applying the following traits:

- a willingness to work with others in shared activities and in sharing of experiences
- appreciation of the benefits gained from shared effort and cooperation
- a sense of responsibility for personal and group actions
- respect for living things and environments, and commitment for their care.

Topic A—Waste and Our World

- Recognize that human activity can lead to the production of wastes, and identify alternatives for the responsible use and disposal of materials.

Grade 4 Social Studies

Core concepts of citizenship and identity

The goal of social studies is to provide learning opportunities for students to:

- individual and collective rights
- understand the commitment required to ensure the vitality and sustainability of their changing communities at the local, provincial, national and global levels

Grade 4 Mathematics

Strand: Statistics and Probability (Data Analysis)

- Students will collect, display and analyze data to make predictions about a population.

General Outcome

- Collect first-hand and second-hand data, assess and validate the collection process, and graph the data.
- Construct a bar graph and a pictograph, using many-to-one correspondence, and justify the choice of intervals and correspondence used.
- Discuss the process by which the data was collected.

Grade 4 English Language Arts

General Outcome 1

- *Students will listen, speak, read, write, view and represent to explore thoughts, ideas, feelings and experiences.*

1.1 Discover and Explore

- compare new ideas, information and experiences to prior knowledge and experiences
- ask questions, paraphrase and discuss to explore ideas and understand new concepts

1.2 Clarify and Extend

- use talk, notes, personal writing and representing to record and reflect on ideas, information and experiences
- explore ways to find additional ideas and information to extend understanding

General Outcome 2

- *Students will listen, speak, read, write, view and represent to comprehend and respond personally and critically to oral, print and other media texts.*

2.1 Use Strategies and Cues

- use ideas and concepts, developed through personal interests, experiences and discussion, to understand new ideas and information
- comprehend new ideas and information by responding personally and discussing ideas with others

2.2 Respond to Texts

- develop own opinions based on ideas encountered in oral, print and other media texts

2.4 Create Original Text

- use a variety of strategies for generating and organizing ideas and experiences in oral, print and other media texts

General Outcome 3

- *Students will listen, speak, read, write, view and represent to manage ideas and information.*

3.1 Plan and Focus

- focus topics appropriately for particular audiences

3.4 Share and Review

- communicate ideas and information in a variety of oral, print and other media texts, such as short reports, talks and posters
- select visuals, print and/or other media to add interest and to engage the audience

General Outcome 4

- *Students will listen, speak, read, write, view and represent to enhance the clarity and artistry of communication.*

- experiment with combining detail, voice-over, music and dialogue with sequence of events

4.3 Present and Share

- present to peers ideas and information on a topic of interest, in a well-organized form
- add interest to presentations through the use of props, such as pictures, overheads and artifacts
- adjust volume, tone of voice and gestures appropriately, to suit a variety of social and classroom activities
- connect own ideas, opinions and experiences to those communicated in oral and visual presentations

General Outcome 5

- *Students will listen, speak, read, write, view and represent to respect, support and collaborate with others.*

5.2 Work within a Group

- take responsibility for collaborating with others to achieve group goals
- use brainstorming, summarizing and reporting to organize and carry out group projects

Safe and Caring Topics and Concepts

Go to < <http://www.sacsc.ca/lessons/lessonplans/>

1. Living Respectfully

- Examining methods that help us deal with conflicts and problem-solving
- Working cooperatively in groups
- Helping others learn or attain a goal
- Developing positive interdependence and relying on each other to complete tasks
- Giving and receiving help

- Respecting and appreciating others' ideas, insights, solutions and contributions

2. Developing Self-Esteem

- Striving for competency builds self-esteem
- Taking responsibility for our actions
- Communicating thoughts and feelings

Teaching Strategies

Go to <http://www.sacsc.ca/lessons/introduction/default.asp> Click on **Strategies** and select those that apply to this lesson or unit plan. List each under the appropriate heading.

Go to http://www.sacsc.ca/Resources/Strategies.htm	Cooperative Learning	Inquiry Learning	Direct Instruction
	<ul style="list-style-type: none"> • Think-pair-share (Partners) • Large group discussion 		<ul style="list-style-type: none"> • Review of graphing components (purpose of; X, Y axes; vertex; bar; line; pictograph) • Review of <i>quality of life</i>

Generalization and Transfer	Peer Teaching	Empathy/Affective Education	General Teaching Activities/Ideas
<ul style="list-style-type: none"> • Graphing class results • Symbolism - metaphor 			<ul style="list-style-type: none"> • Biological Footprint quiz (online)

Supplementary Resources

List texts (provide complete bibliography), websites and other sources that support this lesson or unit plan.

- <http://ecofoot.org/> Earth day Network – Ecological Footprint Quiz