Interactive lesson with the class this lesson will actively engage students to subtract positive and negative integers. An "Essential Question" will be used to activate background knowledge and set the purpose for understanding integers. Students will first be given a lesson via SmartBoard with the ALICE Software and then will work at workstations to practice moving the ALICE characters on the Human Number Line. The program generates an unlimited number of problems for students to work.

Content Standard(s):

1.02 1. Demonstrate computational fluency with addition, subtraction, and multiplication of integers.

1.04 4. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. [7-NS1]

Local/National Standards:

NCTM Principles and Standards Grades 6-8 Understand meanings of operations and how they relate to one another.

Primary Learning Objective(s):

Students will be presented with an ALICE presentation on subtracting integers before they work at individual workstations.

Additional Learning Objective(s):

Direct Instruction / Interactive Computer Workstation

Literacy: Engagement with text other than textbook

Literacy Skill Components: Reading, Listening, and Investigating

Technology: 21st Century Classroom

Curriculum: Across the Curriculum

Approximate Duration of the Lesson: 61 to 90 Minutes

Materials and Equipment:

Teacher Workstation with ALICE Software and Application Program, Projector, Student Workstations with ALICE Software and Application Program

Technology Resources Needed:

Computer with access to Internet

Projector or other display device

Video viewing equipment

Calculators that can calculate positive and negative integers

Interactive white board or Interactive writing pad

Background/Preparation: Students should already have concrete knowledge of positive and negative numbers and the value that they represent.

Procedures/Activities: **Engage:** To assess prior knowledge of integers, have students begin with the essential question worksheet.

Begin the lesson with this statement and question:
"Some students think that learning about positive and negative integers doesn't have anything to do with real-life. What does your group think?"

The groups will brainstorm this statement and question; then, on chart paper, students will list and illustrate every example and question.

**Explore:** Students will be given direct instruction from the teacher. Later they will use the interactive program to practice problems.

**Explain:** Students will speak, explain, justify their answers for the previous activity.

To find out more information about understanding, knowledge, and skills, the teacher will walk around and ask questions.

Clarify any misconceptions about positive and negative integers. Example of some guided discussion questions to encourage deeper thinking may be as follows:"Please tell me about what you are thinking." "I'm not sure I understand. Can you clarify your ideas about a particular problem?" "Please tell me how you arrived at your answer. Share your thinking." "How does this relate to your own experiences?" "How does this relate to what we have studied so far?" "Can you share with us how you went about approaching this essential question?"

**Extend:** The teacher will provide learning opportunities for the students to gain a deeper understanding of working with positive and negative integers. Students will take notes while watching on the direct instruction on subtracting integers.

**Evaluate:** Students will demonstrate their knowledge of identifying positive and negative integers and subtracting integers by answering the Exit Pass.

Students will self check understanding by taking the Self Check Quiz on line and the paper copy of the End of the Lesson Skills Fluency Test.

**Attachments:**
- FallofftheBoardDirections.rtf
- Skills_Fluency_Assessment2.rtf
- Rubric.doc
- 3-2-1.doc
- EssentialQuestionandExitPass.rtf

**Assessment Strategies:**
- Rubric
- 3-2-1
- Exit Pass
- End of the Lesson Skills Fluency Test

**Extension:**
- Personal Tutoring White Board Lesson. After going to the link, go to Chapter 8, Subtracting Integers.

The lesson will be extended by using Interactive Games that include ability levels.
For example: Easy, Medium, Advanced.

Ordering Integers Game

Interactive Game Board

Cyberspace Game (Space Coupe to the Rescue)
Essential Question and Exit Pass

Name: _____________________

Exit Pass: Positive and Negative Numbers

Directions: As a group, on an index card or on the space below answer the “Essential Question”. Then, create an addition problem that adds positive - positive, positive - negative, negative - positive, and negative - negative. Solve your problem and show your work.

Essential Question: Some students think that learning about positive and negative integers doesn’t have anything to do with real-life. What does your group think? As a group, brainstorm this idea. On chart paper, list and illustrate every example and question.
Exit Pass

In the space below, create your subtraction problems.

<table>
<thead>
<tr>
<th>Positive - Positive =</th>
<th>Positive - Negative =</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Negative - Negative =</th>
<th>Negative - Positive =</th>
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<tbody>
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