

Lab Template

Text: Applied Mathematics (CORD)

Volume: _____ **Chapter:**

Unit number: 11 **Title of unit:** Using Signed Numbers & Vectors

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Attach the Following Documents:

- 1. Lab Instructions**
- 2. Student Handout(s)**
- 3. Assessment Tool:** assessment of student journal notes, complete with data table, sketches, and notes

Short Description (Be sure to include where in your unit this lab takes place):

Students will move using their hands to “crab walk” to teacher specified vectors. They will then measure their “crab pace” and estimate the resulting vector before measuring it to verify. This lab takes place about half way through the unit.

Crab Walking to Measure Vectors

LAB PLAN

TEACHER: (*Teacher Prep/Lab Plan*)

- ⤴ **Lab Objective:** Students will be able to create and measure vectors using both conventional and non-conventional means.
- ⤴ **Statement of prerequisite skills needed** (*Vocabulary, Measurement Techniques, Formulas, etc.*) measuring skills in the metric system, knowledge of creating vectors on paper, basic understanding of signed numbers
- ⤴ **Vocabulary:** clock or compass bearings, vector magnitude, resultant, vector direction
- ⤴ **State Standards addressed:** (*Highlight “Green” Standards, you may use your District’s Power Standards if applicable*)
Math: A1.8.A—analyze a problem situation and represent it mathematically
 - ⤴ **Reading:**
 - ⤴ **Writing:**
 - ⤴ **Leadership:** work in 2-3 person teams, each person with a specific task
 - ⤴ **SCAN Skills/Workplace Skills:**

- ⤴ **Teacher Preparation:** *(What materials and set-up are required for this lesson?)*
Materials: 10+ meter tape measure (in centimeters), 5 sticky notes per team, pencils, straight edges, and student journals
 - ⤴ Set-Up Required: have materials ready for teams

- ⤴ **Lab Organizational Strategies:**
 - ⤴ Grouping/Leadership/Presentation Opportunities: teacher appointed groups
 - ⤴ Cooperative Learning: students self-assign duties of 1 measurer, 1 crab walker, and 1 recorder
 - ⤴ Expectations: stay on task, be accurate in measurements, create labeled sketches
 - ⤴ Time-line: 15-30 minutes

- ⤴ **Post Lab Follow-Up/Conclusions** *(to be covered after student completes lab)*
 - ⤴ Discuss real world application of learning from lab: Brainstorm how vectors might be used in a variety of applications
 - ⤴ Career Applications: engineering careers, others?
 - ⤴ Optional or Extension Activities: students can create a lab for our use that would take this lesson even further such as creating a more complex set of vectors, and/or using different pacing devices. What other methods could be used to determine final vector?