

WAMC Lab Template

Math Concept(s): CCSS-M N-VM.1. Recognize vector quantities as having both magnitude and direction. N-VN.4a. Add vectors end-to-end, component-wise, and by the parallelogram rule.

Source / Text: CORD Contextual Approach to Algebra 1Volume 1, Ch 3

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Attach the following documents:

Lab Instructions

Student Handout(s)

Rubric and/or Assessment Tool

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

Lab Plan

Lab Title: Hidden Treasure

Prerequisite skills: Understanding measurements; operation of compass and protractor.

Lab objective: To gain an understanding of vectors, improve teamwork/collaboration skills and hone critical thinking.

Standards:

CCSS-M:

- NV-M.4a. Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of the sum of two vectors is typically not the sum of the magnitudes.
- NV-M.2. Find the components of a vector by subtracting the coordinates of a terminal point.

Standards for Mathematical Practice:

- MP.5. Use appropriate tools strategically; MP6. Attend to precision

State Standards addressed (2008 Washington State Mathematics Standards):

- A1.8.A. Analyze a problem situation and represent it mathematically.

Reading:

- RST.3. Follow precisely a complex multistep procedure when carrying out experiments.

Writing:

- WHST.4.

Leadership/21st Century Skills:

21st Century Interdisciplinary themes (Check those that apply to the above activity.)

- | | | |
|---|---|---|
| <input type="checkbox"/> Global Awareness | <input type="checkbox"/> Financial/Economic/Business/Entrepreneurial Literacy | <input type="checkbox"/> Civic Literacy |
| <input type="checkbox"/> Health/Safety Literacy | <input type="checkbox"/> Environmental Literacy | |

21st Century Skills (Check those that students will demonstrate in the above activity.)

LEARNING AND INNOVATIONCreativity and Innovation

- X Think Creatively
- Work Creatively with Others
- Implement Innovations
- Critical Thinking and Problem Solving
- Reason Effectively
- Use Systems Thinking
- Make Judgments and Decisions
- Solve Problems
- Communication and Collaboration
- Communicate Clearly
- X Collaborate with Others

INFORMATION, MEDIA & TECHNOLOGY SKILLSInformation Literacy

- X Access and Evaluate Information
- Use and manage Information
- Media Literacy
- Analyze Media
- Create Media Products
- Information, Communications and Technology (ICT Literacy)
- Apply Technology Effectively

LIFE & CAREER SKILLSFlexibility and Adaptability

- Adapt to Change
- Be Flexible
- Initiative and Self-Direction
- Manage Goals and Time
- Work Independently
- Be Self-Directed Learners
- Social and Cross-Cultural
- Interact Effectively with Others
- Work Effectively in Diverse Teams

Productivity and Accountability

- Manage Projects
- Produce Results
- Leadership and Responsibility
- Guide and Lead Others
- Be Responsible to Others

Teacher Preparation: (What materials and set-up are required for this lab?)**Materials**

- 1 ruler, tape measure, or yardstick
- 1 protractor paper
- 1 compass (or cell phone with app)

Set-Up Required:

- A location approximately 60 feet by 60 feet (you could scale it smaller if needed).
- Hidden Treasure must be pre-positioned

Lab Organization Strategies:**Grouping/Leadership/Presentation Opportunities:**

- Groups will be 3 people
- Competitive nature, yet fun

Cooperative Learning:

- The group dynamics and competition allow for inspired learning through the fun activity

Expectations:

- All students participate within the timeframe
- Safety is a priority

Post Lab Follow-Up/conclusions:**Discuss real world application of learning from lab**

- Using a map & compass to navigate along a vector/azimuth
- Following a set of instructions

Career Applications

- Business and Marketing; Industrial Technology

<https://wa-appliedmath.org/>