

WAMC Lab Template

Math Concept(s): Parallel Lines cut by a transversal

Source / Text: Cord Geometry – Learning in Context

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Attach the following documents:

Lab Instructions:

- Students will pair up to complete this lab.
- Student pairs will research and choose a city throughout the world. Once they have chosen a city they are to find two parallel streets that are cut by a non-perpendicular street transversal.
- Once the streets have been selected, pairs are to measure the angles of the two lines and the transversal to ensure that the two “parallel” lines are parallel.
- After determining the lines are parallel, the pairs are to prepare to present their findings by sketching the portion of the city onto construction paper and be able to explain the following: the city and country, explain why they chose the city they selected, and what angle pairs are present and why those are the respective angle pairs.
- Present their findings to the class.

Student Handout(s):

- Student handout with instructions on lab activity as well as guiding questions to prepare for presentation

Rubric and/or Assessment Tool: Presentation rubric

Indicate “SPECIFIC” relationship to Science, Technology, or Engineering

Civil engineering and land development

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

Students will gain understanding of how angles relate to each other when there is a pair of parallel lines that are cut by a transversal. They will use the CTE COW (Computer on Wheels) for their research and will be provided the construction paper to use during their presentation.

Lab Plan

Lab Title: Geometry Parallel Lines and a Transversal

Prerequisite skills: Identifying parallel lines, understanding how parallel lines and transversals create angle pairs.

Lab objective: Students will gain understanding of how angles relate to each other when there is a pair of parallel lines that are cut by a transversal.

Standards:

Mathematics K–12 Learning Standards:

- G.SRT.9 Congruence - Prove theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment’s endpoints.*

Standards for Mathematical Practice:

- MP1, MP2, MP3, MP5, & MP6

K-12 Learning Standards-ELA (Reading, Writing, Speaking & Listening):

- ELA – RI and ELA – W

Leadership/21st Century Skills:

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

- | | | |
|--|---|---|
| <input checked="" 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 INNOVATION

Creativity and Innovation

- 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
- Collaborate with Others

INFORMATION, MEDIA & TECHNOLOGY SKILLS

Information Literacy

- 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 SKILLS

Flexibility 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

Council

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

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

Materials

- Computers (laptop)
- Drawing/color pencils/pens
- Construction paper
- Google Maps
- Rulers/straight edge
- Protractors

Set-Up Required:

- Get CTE COW (Computers on Wheels)
- Ensure Internet is operational

Lab Organization Strategies:

Leadership (Connect to 21st Century Skills selected):

- Cooperative learning/collaborate with others/complete tasks within group (pairs)
- Communicate clearly/works creatively with others
- Prepared to present on time

Cooperative Learning:

- Students will be in pairs.
- Each pair will be research a city and present their results.

Expectations:

- Students will gain understanding of how angles relate to each other when there is a pair of parallel lines that are cut by a transversal.

Timeline:

- 200 minutes for research and presentations

Post Lab Follow-Up/Conclusions:

Discuss real world application of learning from lab

- Students need to learn the relationships between angles as they are created by the parallel lines and the transversals.

Career Applications

- Civil engineering
- Land development
- City planners

Optional or Extension Activities

- An optional lab could be a search through the school grounds finding parallel lines cut by transversal
- Have students research building architecture throughout the world for unique buildings and then research facts about that building to be presented to class.