Rethinking Our Roads 8-Step PBLP (Grades 7–12)

Objective: Students will explore the concept of Active Transportation Plans (ATP) and how they're designed to protect the community by enhancing walkability, bikeability, and non-motorized transportation systems. By understanding the fundamentals of urban mobility, infrastructure deprivation, and environmental planning, students will analyze current ATP strategies and design safe transportation solutions tailored to their community. Success is measured by developing proposals that balance feasibility, safety, and innovation—meeting the needs of all users without overburdening local infrastructure or resources.

Round Table

- **Opening Discussion:**
  - What does "Active Transportation Plans" (ATP) mean, and why is it important for our city?
  - What types of transportation should be safe and accessible for all?
  - How do urban design and road infrastructure impact people's daily lives?
- **Purpose:** Introduce students to the purpose of Active Transportation Plans (ATP), and how city planning affects safety and accessibility in our communities.

Reflection Point

- **Discussion Questions:**
- **Objective:** Build empathy and awareness by reflecting on transportation challenges and safety concerns in students' communities.
- **Prompt:**
  - Journal prompt: "What does a reimagined driving space look like to you?"

Knowledge Setting

Science (S): Environmental and Human Factors in Transportation	❖ **Objective:** Understand how environmental factors such as lighting, air quality, and noise affect safety and health outcomes in transportation planning. ❖ **Activity:** Conduct a walkability and biking audit of their school zone or neighborhood, documenting environmental hazards and proposing science-based recommendations (e.g., tree planting for shade, noise barriers, improved lighting).
Technology (T): Smart Infrastructure and Transportation Tools	❖ **Objective:** Understand how technology enhances safety and efficiency in active transportation systems. ❖ **Activity:** Research technology explaining how tools like pedestrian countdown signals, smart crosswalks, and GIS mapping are used in city planning.
Engineering (E): Design Concepts for Safer Streets	❖ **Objective:** Understand the role of engineering in creating safer, more accessible streets for non-motorized transportation. ❖ **Activity:** Using the Audubon Drive Corridor Study to evaluate design elements (e.g., lane width, bike lane design, curb extensions) and propose alternatives to improve safety for all users.

Arts (A): Visualizing Active Communities	❖ **Objective:** Understand how artistic methods are used to communicate accessible street designs. ❖ **Activity:** Compile a “before and after” streetscape showing how one location can be transformed through ATP-inspired design (e.g. signage, bike lanes, art installations, or pedestrian paths).
Mathematics (M): Data-Driven Safety Analysis	❖ **Objective:** Understand and analyze transportation data to identify safety patterns and propose evidence-based solutions. ❖ **Activity:** Graph trends from local collision data, compare pedestrian vs. vehicle incidents, and calculate risk rates for specific corridors.
Social Studies (SS): Equity and Policy in Transportation Planning	❖ **Objective:** Investigate how transportation policy and urban planning influence access, equity, and quality of life across communities. ❖ **Activity:** Review city zoning maps and policy briefs, to understand reports on how transportation design affects vulnerable populations.

Project Examples

Progress Map for Project Delivery	❖ **Week 1: Project Proposal** ● Students gather foundational knowledge through a collaborative knowledge-setting session. They meet with community partners (if possible) and create a written proposal outlining the project focus and intended community benefit. ● **Week 2: Initial Project Proposal and Community Engagement Plan** ● Students submit proposals and reflect on community input, refining their plans. They outline how the project addresses real-world needs and aligns with learning objectives. ❖ **Week 3: Research Progress Update** ● Students conduct research, gather data by consulting with community partners to guide their project development and ensure accuracy. ❖ **Week 4: Draft of Final Project** ● Students compile findings into a working draft of their final project proposal. ❖ **Week 5: Final Project Refinement and Approval for Implementation** ● Students apply final feedback to strengthen their project and submit it for approval. Approved projects move forward to the community involvement and assessment phases outlined in the SOP.

Science (S): Human Health and Environmental Safety in Street Design	❖ **Project Example:** In partnership with the city's environmental health department or a local wellness organization, design a health-based streetscape improvement (e.g., tree canopy plan,

	safe walking route, or traffic pollution buffer).
Technology (T): Using Digital Tools to Survey Community Transportation Needs	❖ **Project Example:** With support from the local planning office, school district, or neighborhood council, students will design and distribute a digital survey to gather input on transportation safety concerns like sidewalk gaps, signage, and school zone access. Map the results, generate visualizations, and present key findings to their community partner, along with a proposed tech-based solution.
Engineering (E): Designing Safe Infrastructure for All Users	❖ **Project Example:** Partner with mobility advocacy group to identify a problematic corridor. Using community interviews or feedback collected by the city, draft a scaled redesign (e.g., wider sidewalks, ADA-compliant ramps, protected bike lanes) aligned with ATP standards.
Arts (A): Visualizing a Connected and Inclusive Street	❖ **Project Example**: Collaborating with local artists, city cultural affairs teams, or neighborhood associations, co-design an artistic installation (e.g., street mural, safety signage series, or cultural banners) that reflects community identity and encourages pedestrian safety.
Mathematics (M): Mapping and Modeling Risk Reduction	❖ **Project Example**: Partner with the planning department to analyze incident frequency by location. Calculate risk patterns and create visual maps or

	trend graphs that could be used to recommend a design change in the future.
Social Justice (SS): Access in Transportation Policy	❖ **Project Example**: In partnership with equity advocates, city council members, or public policy nonprofits, analyze access disparities in current ATP implementation. Review zoning maps, income data, and pedestrian infrastructure to highlight overlooked areas. Create a short policy brief or visual timeline showing how transportation design has contributed to depravity, and propose a change rooted in ATP goals.

Community Involvement

- ❖ **Objective:** Evaluate the quality and depth of each student project's engagement with community partners and stakeholders throughout the research and design process.
- ❖ **Activity:** Collect final feedback from community partners through an impact report.

Assessment

- ❖ **Objective**: Evaluate students' understanding of transportation safety and environmental health and design innovation through a real-world lens using ATP as a unifying theme.
- ❖ **Methods**: Use rubrics that measure innovation, collaboration, problem-solving, community impact, and understanding of space-inspired solutions.

Feedback Loop

- **Activity**: After receiving final feedback from their community partner or city panel, students will complete a reflection journal.
- **Journal Prompt**:
  - What insights did I gain from working directly with a community partner?
  - How did feedback from professionals or peers shape my understanding of local transportation needs?
  - If I could expand this project, what tools or partnerships would I add to increase community impact?

Resume Integration

- Complete a resume-building workshop and draft a brief project summary for professional use. They should identify related career interests such as urban planning, civic technology, community development, environmental science, or public policy.

For more 8-Step Project-Based Lesson Plans check out our website at www.steamsinitiative.org

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