



# LESSON PLAN

EdTank obstacle course

## OVERVIEW

Get students exploring the problem of vehicle design on a mini scale using the EdTank and an unmodified Edison robot. A perfect project for collaboration, students will experience design thinking, prototyping and the iterative design process as they create and test their obstacle course.

## INVESTIGATION QUESTIONS

Many real-world vehicles, like bulldozers and snowmobiles, use treads instead of wheels. Why? What advantages do treads give a vehicle compared to standard wheels? What are the trade-offs that come with this swap?

## WHY THE EDTANK?

One of the five EdBuild engineering projects using EdCreate, students can build the EdTank following video or book-based instructions. Using the EdCreate kits and step-by-step instructions for creating an EdBuild helps ease students into building with Edison without needing to design the creation themselves. This is a great way to give kids exposure to interactive engineering while minimising frustration.

While the EdTank is a pre-set build, there's still plenty of design thinking required in this project! Once they've built the EdTank, students need to unleash their creativity as they design an obstacle course for the robots to navigate.

## DESIGN AND TEST

Have students first design an obstacle course prototype using materials like construction paper. Prototyping is an important step in the engineering design process and a good way for students to begin to see the limits, and potential, of their ideas. Based on the concept, students will need to create a larger version, then test both their EdTank and a standard Edison in the course.

Students can program the robots using barcodes paired to TV remote controls, then drive the robots through the course. Or, for an added challenge, have teams code the robots to navigate the course independently using any of the Edison robot programming languages.

Which robot does better with which obstacles? Are there any obstacles neither robot can complete? Challenge students to iterate their design and keep testing, exploring the limits and the reasons behind each limit.

Students can try this project with either the basic EdTank or the complete EdTank build. You can also get students to test both designs in the obstacle course to see what happens to the EdTank when the extra weight of the second Edison robot is added.

Get the EdTank build instructions at  
[www.meetedison.com/edcreate/](http://www.meetedison.com/edcreate/)