
INITIATE Lesson Plan: *Identify Business Opportunities with AV's*

Lesson plan at a glance...

Name:Kathy Axe

Course: Manufacturing Tech

Grade Level: 10

Prerequisites: Introduction to Dexter GoPiGo3i

Time: 5 Class Periods

Standards: Manufacturing Processes 1.6.1, 1.10.2, 1.10.04
1.6.5 and 1.2.5

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Lesson Overview

In this lesson.... We will research, develop and market a safe autonomous vehicle to our chosen market.

Driving Questions

Overarching Driving Question for INITIATE Wide Project:

- How safe are autonomous vehicles?

Lesson Specific Question: Can autonomous vehicles be safely used in Toledo

Materials and Equipment

List Materials Here

Preparation Tasks (Dexter)

Build a Self Driving Car with GoPiGo 3	<i>Time</i> 42 minutes
GoPiGo License Plate using TinkerCad Tools	<i>Time</i> 42 minutes
Engineering Design Process Lesson 1	<i>Time</i> 42 minutes
Engineering Design Process Lesson 2	<i>Time</i> 42 minutes
Engineering Design Process Lesson 3	<i>Time</i> 42 minutes
Engineering Design Process Lesson 4	<i>Time</i> 42 minutes
Engineering Design Process Lesson 5	<i>Time</i> 42 minutes
GoBox Mission 2 Obstacle Course	<i>Time</i> 42 minutes

The Lesson

Warm-up Activity: <i>Introduction of Autonomous Vehicle-</i> visit from Navya	<i>Time</i> 42 minutes
Activity 1: Article Review Sensible Sensible Sentence Highlighting- Review Forbes 5/21/19 The Next Billion Dollar Business in Autonomous Safety and Compliance	42 minutes

Activity 2: <i>AV Regulations_4</i> Corners: Who sets regulations? Government, State, Exempt or driver training. Research with your group and state your case.	42 minutes
Activity 3: <i>Safety Features</i> Compare and Contrast, Look at Safety Features of an Autonomous Vehicle and Kia Optima	42 minutes
Wrap-up Activity: Business decision Brainstorm our customer and service we will provide make final decision and create project timeline	42 minutes
Wrap-up Project: Create PowerPoint for investor to sell our business venture	5 class periods

Warm-up Activity: What is an Autonomous Vehicle (42 minutes)

Activity Overview: In this activity, students will be introduced to Autonomous Vehicles

Activity: Guest Speaker- Navya a 100% autonomous, driverless and electric transport vehicle, Students will hear a brief overview of the vehicle, have a chance to ask questions, and ride in the vehicle.

Activity 1: What is an Autonomous Vehicle (42 minutes)

Activity Overview: In this activity, students will review the current Autonomous Vehicle market

Activity: Sensible Sentence Highlighting- Review Forbes 5/21/19
The Next Billion Dollar Business in Autonomous Safety and Compliance

Teaching Tips:

- Sensible Sentence Highlighting- Article is displayed on the white board and students take turns highlighting important sentences in the article. We will then review together what should be highlighted and what is unnecessary. Prep- I will have my copy of what I wanted highlighted when reviewing.

Activity 2: Transportation Regulations (42 minutes)

Activity Overview: In this activity, students will ... research the various automobile governing bodies

Activity: *AV Regulations_4* Corners: Who sets regulations? Government, State, Exempt or driver training. Research with your group and state your case.

Teaching Tips:

- Post each topic in four corners of the room. Students choose one corner and using one class period research automobile regulations and make a case for their governing body

Activity 3: Motorized Vehicle Safety (42 minutes)

Activity Overview: In this activity, students will ... compare Navya's AV to a Kia Optima

Activity: *Safety Features* _Compare and Contrast, Look at Safety Features of an Autonomous Vehicle and Kia Optima

Teaching Tips: Using a Compare and Contrast Chart students will compare safety features of a Navya's AV and the Kia Optima (safest USA vehicle) students will use the sales brochure of each vehicle.

Wrap-up Activity: Analysis and reflection (20 minutes)

Activity Overview: In this activity, students will ...

Activity:

1. Business decision Brainstorm our potential client and service we will provide, make final decision and create project timeline

Assessment: Exit Slip- Students choose a client and service for business venture

Learning Objectives and Standards

Learning Objectives	Standards
Introduction of Autonomous Vehicles	1.6.1 Identify Business Opportunities
How can our Community use Autonomous Vehicles	1.10.2 Determine the customers needs and identify solutions
Identify the benefits of Autonomous Vehicles	1.10.04 Communication Features, benefits and warranties of a product or service to the customer
Identify our customer and service	1.6.5 Identify the target market served by the business the niche business fills and outlook of the industry
Make a powerpoint presentation selling our service to our chosen customer	1.2.5 Communicate information for an intended audience and purpose

Additional Information and Resources

Project-based Learning Features

Feature	Where does this occur in the lesson?
<i>Making Sense of Data</i>	Activity 1 Autonomous Vehicles safety and compliance can it be grouped
<i>Making Sense of Data</i>	Activity 2 Students will review automobile regulations can it be converted to rates
<i>Making Sense of Data</i>	Activity 3 Students will review safety features and classify and sort onto a chart

Computational Thinking Concepts

Concept	Where does this occur in the lesson?
Abstraction	<i>Each activity in this lesson is designed to get the students involved in the material and pull out the resources they need to complete the project.</i>

Administrative Details

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Sources:

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Template adapted from: <https://edu.google.com/resources/programs/exploring-computational-thinking/>