**Subject area/course**: Math

**Grade level/band**: 7th-9th

**Task source**: SCALE

**Car Color**

**TEACHER'S GUIDE**

1. **Task overview**:

Students will apply knowledge of probability and problem solving to examine urban myths related to sports cars and the color of the car.

1. **Aligned standards:**
2. **Primary Common Core State Standards**

**CCSS 7.SP.A.1:** Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

**CCSS 7.SP.C.5:** Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

**CCSS 7.RPA.3:** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

**CCSS 8.SP.A.4:** Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.

**CCSS HSS.IC.B.6:** Evaluate reports based on data.

1. **Critical abilities**

**Analysis of information**: Integrate and synthesize multiple sources of information (texts, digital source) presented in diverse formats and media in order to address a question, make informed decisions, understand a process or concept, and solve problems.

**Communication in many forms:** Use oral and written communication skills to learn, evaluate, and express ideas for a range of tasks, purposes, and audiences.

**Interpersonal Interaction and Collaboration:** Develop a range of interpersonal skills, including the ability to work with others, to participate effectively in a range of conversations and collaborations.

1. **Time/schedule requirements:**

 This task will take approximately two days (in class) to complete.

1. **Materials/resources:**
* Student Instructions
* *Car Color Facts and Fiction* article *(See Student Instructions)*
* Youtube video demonstrating that some car colors are more difficult to see (<https://www.youtube.com/watch?v=DY9AHULgZ7c>)
1. **Prior knowledge:**

 Students should know how to determine the probability of an event.

1. **Connection to curriculum:**

*Car Color* is designed to provide students an opportunity to apply knowledge and skills related to probability to make decisions in a real life situation that requires problem solving, communication, reasoning, and analysis of information.

1. **Teacher instructions:**

**Daily Breakdown of Activities:**

|  |  |  |
| --- | --- | --- |
|  | **Overview** | **Teacher Notes** |
| Day 1 | * Class discussion regarding how the color of a car possibly impacts safety, theft, and tickets
* Show the video that demonstrates why some cars are more difficult to see because of their color.
* <https://www.youtube.com/watch?v=DY9AHULgZ7c>
* Discuss and provide the article Car Color Fact & Fiction
* Students work in small groups (2-3 students) to discuss and solve the color challenge questions.
 | * Discuss that cars of different colors can be harder/easier to see in different situations.
* The video demonstrates why some car colors are more challenging to see than others.
* The document (article) is text heavy but provides details about car color in regards to safety, tickets, theft and other facts.
* After student groups complete the class activity, debrief as a whole class – this is critical for preparing students for the individual performance assessment.
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| Day 2 | * Students **individually** complete the Car Color Performance Assessment.
 | * Allow students to use a calculator and notes from previous day.
* This is an opportunity for students to demonstrate their individual knowledge. Provide scaffolds and support as necessary with reading the prompt and understanding the context of the task.
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1. **Student support:**

Define the following words used in the task.

* + car accident
	+ tickets
	+ urban myth
1. **Extensions or variations:**

Teachers may use other information from this article to elevate the rigor of the mathematics for HS students.

<https://www.monash.edu/__data/assets/pdf_file/0007/216475/muarc263.pdf>

1. **Scoring:**

Student work can be scored using the SCALE Math Performance Task rubric.