LESSON 7
RACE TRACK MATH

START YOUR ENGINES!

ASK: Tell your child what the letters STEAM stand for? (Science, Technology, Engineering, Arts and Math)

SAY: STEAM skills help prepare you for your future. Many jobs in the 21st century require knowledge in these areas—as well as being able to work with a team, think creatively, communicate well in writing and speech and solve tricky and challenging problems. You’ve worked hard to fine tune your science, technology, and engineering skills as you completed this unit. Now it’s time to strengthen your math muscle as we race around the track solving problems in adding, subtracting, multiplying or dividing!

REVIEW the Mathematical Practice chart below.

SAY: Strong mathematicians use certain skills or practices to help them solve problems. Let’s review these skills together. Today you will use many of these skills to win the race.

<table>
<thead>
<tr>
<th>MATHEMATICAL PRACTICES</th>
<th>KID FRIENDLY VERSION</th>
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<tbody>
<tr>
<td>1 Make sense of problems and persevere in solving them</td>
<td>I try different ways to solve a problem</td>
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<tr>
<td>2 Reason abstractly and quantitatively</td>
<td>I solve problems in my head and on paper</td>
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<td>3 Construct viable arguments and critique the reasoning of others</td>
<td>I explain my math thinking and talk with others about their thinking</td>
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<tr>
<td>4 Model with mathematics</td>
<td>I use symbols and numbers to solve problems</td>
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<td>5 Use appropriate tools strategically</td>
<td>I know how to choose the best tool to help me solve problems</td>
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<tr>
<td>6 Attention to precision</td>
<td>I check my work to see if it is correct. I use labels and am accurate</td>
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<tr>
<td>7 Look for and make use of structure</td>
<td>I look for patterns to help me solve problems</td>
</tr>
<tr>
<td>8 Look for and express regularity in repeated reasoning</td>
<td>I see when patterns repeat and look for short cuts</td>
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OBJECTIVES
Your child will:
• Practice collaboration, communication and critical thinking skills
• Solve math problems using a variety of Common Core Mathematical Practices

You will need:
• Race Track Math
• Scratch paper for working solutions
GO!
Give your child the “Race Track Math” Worksheet

PIT CREW OPTION:
If possible, have your child work with a friend or family member over the phone or other form of connection.

SAY: To win this race, you’ll need the help of the pit crew. Just like NASCAR drivers, you can’t do it on your own. Work with others to solve the math problems and challenges.

PRACTICE PROBLEM
WRITE: 34 cars are ready for the race! Each car has a driver and a pit crew of five mechanics. How many total drivers and mechanics are ready to race? (A: 204)

SAY: Let’s read the problem together. What are we trying to answer? (A: How many total drivers and mechanics are ready to race?) Let’s underline the question. What are key pieces of information in the problem that we need to use? (A: 34 cars each with 1 driver and 5 mechanics) Let’s circle the key information.

Draw a picture as you read so your child can see a car with 1 driver and 5 mechanics for a total team of 6.

REVIEW answers and discuss different approaches to finding the solution.

ASK: Which Mathematical Practices did you use to solve this problem?

SAY: Are you ready to begin the race? Then start your engines and go!

ALLOW time to complete the worksheet.

REVIEW answers. ASK: Which problems were easiest to solve? Which were the most difficult? Which Mathematical Practices did you use?
VICTORY LANE – BEYOND THE RACE!

1. **Tally and Graph!** Tally the Mathematics Practices your child used. Graph the results in a bar graph. Which practice is used most often?

2. **Race On!** Ask your family and friends to create race track word problems and create their own Race Track Math game board.

3. **Write On!** Ask your child to respond in their journals to the following prompt: Which is more important: Being strong in mathematical skills (adding, subtracting, multiplying and dividing) or being strong in mathematical practices? Are they both important? Why?
STEAM at Sonoma Raceway:

SONOMA RACEWAY MATH CHALLENGE

The Toyota/Save Mart 350 at Sonoma Raceway is a challenging NASCAR® race that's very different from the normal oval-shaped track. It takes incredible skill and concentration to finish in first place.

Are you ready for a challenge? Use your math skills to make your way around the Sonoma Raceway track. After you complete each word problem, color in that segment of the track. How quickly can you make your way around the track?

If you get stuck on a problem, get help from your pit crew (family members).

1. 4 cars are ready for the race. Each car has a driver and a pit crew of 5 mechanics. How many total drivers and mechanics are ready to race?
2. A racetrack is 2.5 miles long. How many feet long is the track? (Remember that 5,280 feet = 1 mile.)
3. If one racecar has 4 tires, how many tires are there on 7 cars?
4. One lap around the track takes 40 seconds. How many laps in 200 seconds?
5. 315 fans paid $1.50 each to see their favorite driver race today. How much money was collected at the gate?
6. Ace enters 20 races during the season. He wins 15 times. What is his winning average?
7. Jim has twice as many racecars as Cora and half as many racecars as Jeff. If Cora has four racecars, how many does Jeff have?
8. The racetrack asphalt measures 100°F. The temperature in the stands is 89°F. How much warmer is the track than the stands?
9. A gallon of racing fuel weighs 6 pounds. If a racecar has a 12-gallon gas tank, how much weight will a full tank of gas add to the car?
10. A race is 350 miles long. If Roberto drives 100 miles per hour, how many hours will it take him to finish the race?
11. Boomer crosses the finish line after 1 hour and 27 minutes. How many total minutes did Boomer race?
12. Start:
   A professional driver raced 36 times last year. If he won 1/4 of the time, how many total races did he win?

Finish:
315 fans paid $1.50 each to see their favorite driver race today. How much money was collected at the gate?