



Glue this side into your notebook



The Slow and the Sedate

You are working for a movie being produced: The Slow and the Sedate. It's an action movie acted out totally by sloths racing cars around the city at sloth speed. You want to explore the different shots you can get from different perspectives. You'll be running some test runs of the different action scenes and describing how the motion will appear from those different **reference points**.



For these scenes you will need the following: 2 scooters, 3 actor label signs, 3 phones to take video clips, and 3 stunt doubles/camera people.

Choose your stunt double roles:

Scooter 1 _____

Scooter 2 _____

Tree _____

Director _____

Before you Begin

You will be taking video and changing the position the camera is watching the action scene. Then you will be describing the motion of a specific stunt double based on the position of the camera by looking at your different video footage.

What will be the **independent variable**?

What will be the **dependent variable**?

Scene 1

For this scene you will need Scooter 1 and the Tree. Scooter 1 is driving down the road and the Tree is stationary looking at it.

Director's Camera Directions	Scooter 1: Drive down the road and take a shot of the scooter moving along the ground.	Tree: Stay stationary and film the scooter driving past you. Keep the camera in one position; don't follow the scooter as it drives.
Describe the motion	Describe the motion of Scooter 1 compared to the ground: Draw and label an arrow that shows the motion of Scooter 1 and one that shows the motion of the ground compared to Scooter 1.	Describe the motion of Scooter 1 compared to the Tree: Draw an arrow that shows what Scooter 1's motion looks like to the Tree.

Is the motion of the Scooter seen the same or different compared to the ground versus the Tree?

Use evidence to explain what you mean.

Scene 2

For this scene you will need Scooter 1 and the Tree. Scooter 1 is driving down the road and the Tree is stationary looking at the ground.

Director's Camera Directions	Scooter 1: Drive down the road and take a shot of tree as you move past it. Keep the camera in one position; don't follow the Tree as it drives.	Tree: Stay stationary and film the ground below you. Keep the camera in one position; don't follow the scooter as it drives.
Describe the motion	Describe the motion of the Tree compared to Scooter 1: Draw an arrow that shows what the Tree's motion looks like to Scooter 1.	Describe the motion of Scooter 1 compared to the Tree:

Is the motion of the Tree seen the same or different compared to the ground versus Scooter 1?

Use evidence to explain what you mean.

Scene 3

In this scene there are two Scooters racing each other down the road. For this action shot Scooter 1 is going faster than Scooter 2 (in sloth speed!).

Director's Camera Directions	Scooter 1: Drive down the road the opposite direction as Scooter 2 and take a shot of Scooter 2. Keep the camera in one position; don't follow the scooter as it drives.	Scooter 2: Drive down the road the opposite direction as Scooter 1 and take a shot of Scooter 1. Keep the camera in one position; don't follow the scooter as it drives.	Tree: Stay stationary and film the scooters driving past you. Keep the camera in one position; don't follow the scooter as it drives.
Describe the motion	Describe the motion of Scooter 2 compared to Scooter 1. Draw an arrow that shows the motion of Scooter 2 compared to Scooter 1.	Describe the motion of Scooter 1 compared to Scooter 2. Draw an arrow that shows the motion of Scooter 2 compared to Scooter 1.	Describe the motion of the two scooters compared to the Tree. Draw an arrow that shows what Scooter 1's motion looks like to the Tree.

Was the motion of Scooter 1 seen the same from Scooter 2 as it was from the Tree? Explain with evidence.

Was the motion of Scooter 2 seen the same from Scooter 1 as it was from the Tree? Explain with evidence.



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Scene 4

In this scene there are two Scooters racing past each other in opposite directions down the road.

Director's Camera Directions	Scooter 1: Drive down the road the same direction as Scooter 2 and take a shot of Scooter 2. Keep the camera in one position; don't follow the scooter as it drives.	Scooter 2: Drive down the road the same direction as Scooter 1 and take a shot of Scooter 1. Keep the camera in one position; don't follow the scooter as it drives.	Tree: Stay stationary and film the scooters driving past you. Keep the camera in one position; don't follow the scooter as it drives.
Describe the motion	Describe the motion of Scooter 2 compared to Scooter 1. Draw an arrow that shows the motion of Scooter 2 compared to Scooter 1.	Describe the motion of Scooter 1 compared to Scooter 2. Draw an arrow that shows the motion of Scooter 2 compared to Scooter 1.	Describe the motion of the two scooters compared to the Tree. Draw and label two arrows that show what the motion of Scooter 1 and Scooter 2 look like to the Tree.

Was the motion of Scooter 1 seen the same from Scooter 2 as it was from the Tree? Explain with evidence.

Was the motion of Scooter 2 seen the same from Scooter 1 as it was from the Tree? Explain with evidence.

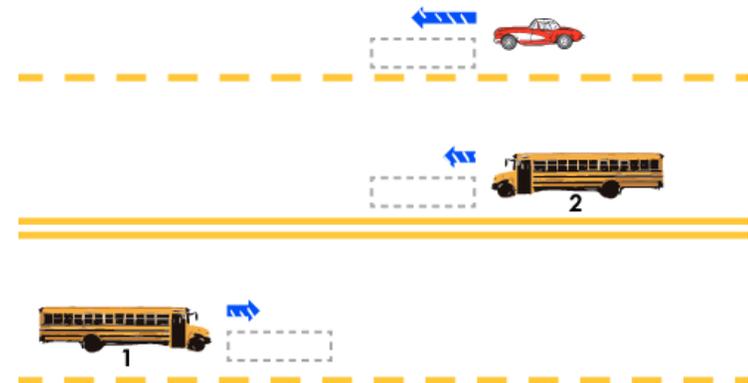
Conclusions and Practice

1. Does how we describe the motion of objects depend on which object is the one describing the motion? Give an example to support your answer.

2. What do you think the term **relative motion** means, after doing this lab?

3. What do you think a **reference point** is, after doing this lab?

4. Fill in the blank boxes in the diagram below with the following options showing the motion of Bus 1, Bus 2, and the car itself compared to the car.



Key	
	Motion with respect to ground
	Motion with respect to car