Speedy Acceleration Lab

Objective: Students will collect data and use it to calculate speeds and acceleration
Question: Which student is the fastest? **Materials:** Stopwatches and phones with timers
Procedure: In groups of 6: One student at a time will be a "runner" and the other 5 will be timers.

1. Timers will station themselves at each of the meter marks (20, 40, 60, 80, 100)
2. Runners begin running and timers start their watches on the teacher's signal
3. Timers should stop their watch when the runner passes by them.
4. After the runner crosses the 100 feet mark, the team should get together and exchange data
5. After data collection, students should calculate the average acceleration and graph their data.

1. Runner's Name	20 feet	40 feet	60 feet	80 feet	100 feet
Time in seconds	s	s	s	s	s
Speed (distance/time)	ft/s	ft/s	ft/s	ft/s	ft/s

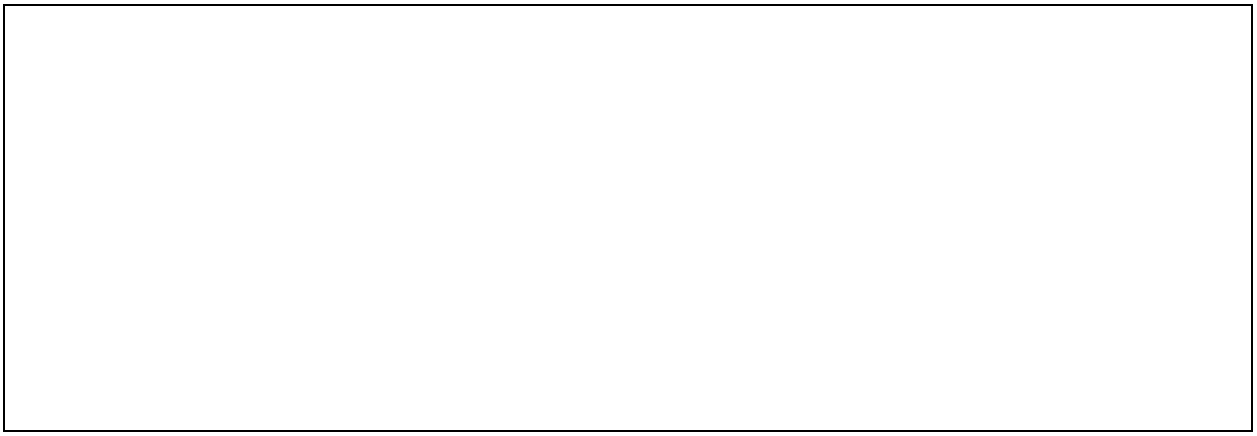
2. Runner's Name	20 feet	40 feet	60 feet	80 feet	100 feet
Time in seconds	s	s	s	s	s
Speed (distance/time)	ft/s	ft/s	ft/s	ft/s	ft/s

3. Runner's Name	20 feet	40 feet	60 feet	80 feet	100 feet
Time in seconds	s	s	s	s	s
Speed (distance/time)	ft/s	ft/s	ft/s	ft/s	ft/s

4. Runner's Name	20 feet	40 feet	60 feet	80 feet	100 feet
Time in seconds	s	s	s	s	s
Speed (distance/time)	ft/s	ft/s	ft/s	ft/s	ft/s

5. Runner's Name	20 feet	40 feet	60 feet	80 feet	100 feet
Time in seconds	s	s	s	s	s
Speed (distance/time)	ft/s	ft/s	ft/s	ft/s	ft/s

6. Runner's Name	20 feet	40 feet	60 feet	80 feet	100 feet
Time in seconds	s	s	s	s	s
Speed (distance/time)	ft/s	ft/s	ft/s	ft/s	ft/s



SPEEDY LAB Acceleration Data

After data collection, students should calculate their acceleration for each distance and graph their data.

Acceleration from 0 to 20ft

Time at 20 feet_____	Time at 0 feet_____	Difference (**Δ**) in time _____
Speed at 20 feet _____	Speed at 0 feet _____	Difference (**Δ**) in speed _____
Acceleration = _____ ÷ _____ = _____ ft/s^2 (**Δ**time) (**Δ**speed)		

Acceleration from 20 to 40ft

Time at 40 feet_____	Time at 20 feet_____	Difference (**Δ**) in time _____
Speed at 40 feet _____	Speed at 20 feet _____	Difference (**Δ**) in speed _____
Acceleration = _____ ÷ _____ = _____ ft/s^2 (**Δ**time) (**Δ**speed)		

Acceleration from 40 to 60ft

Time at 60 feet_____	Time at 40 feet_____	Difference (**Δ**) in time _____
Speed at 60 feet _____	Speed at 40 feet _____	Difference (**Δ**) in speed _____
Acceleration = _____ ÷ _____ = _____ ft/s^2 (**Δ**time) (**Δ**speed)		

Acceleration from 60 to 80ft

Time at 80 feet_____	Time at 60 feet_____	Difference (**Δ**) in time _____
Speed at 80 feet _____	Speed at 60 feet _____	Difference (**Δ**) in speed _____
Acceleration = _____ ÷ _____ = _____ ft/s^2 (**Δ**time) (**Δ**speed)		

Acceleration from 80 to 100ft

Time at 100 feet_____	Time at 80 feet_____	Difference (**Δ**) in time _____
Speed at 100 feet _____	Speed at 80 feet _____	Difference (**Δ**) in speed _____
Acceleration = _____ ÷ _____ = _____ ft/s^2 (**Δ**time) (**Δ**speed)		

Fill in the Table Below and use this data to graph acceleration vs time

Distance	0	20	40	60	80	100
Total Time						
Acceleration						