

## Unit T4 • Designing a Fair Test

### Elements of a Fair Test

**CONTROLLING variables:** Making sure the only thing that changes in your test is what you plan on measuring.

**MULTIPLE trials:** Making sure that you don't base your thinking on too few events.

**OBJECTIVE measurement:** Making sure that you measure using a system that others can use in the same way.

Gregory thought that the contest to determine the best runner wasn't a **fair** test. What kind of things could you do in a race to make sure that it fairly determined a winner?

Here are Gregory's complaints:	What is your idea for making things fairer?	Does your idea involve:
<i>Gregory raced immediately after eating and Evan raced an hour after eating.</i>	<i>have everybody eat at the same time</i>	<input checked="" type="checkbox"/> <b>controlling variables?</b> <input type="checkbox"/> multiple <b>trials</b> ? <input type="checkbox"/> <b>objective</b> measurement?
<i>The decision about who was the best runner was based on only one race.</i>	<i>allow people to run the race three times and then average the times</i>	<input type="checkbox"/> <b>controlling variables?</b> <input checked="" type="checkbox"/> multiple <b>trials</b> ? <input type="checkbox"/> <b>objective</b> measurement?
<i>The coach watched the runners and picked out who he thought crossed the finish line first to be the winner.</i>	<i>the coach should use a stopwatch to time the runners</i>	<input type="checkbox"/> <b>controlling variables?</b> <input type="checkbox"/> multiple <b>trials</b> ? <input checked="" type="checkbox"/> <b>objective</b> measurement?

Are there other ways in which a race could be unfair? How would you make sure things were **fair** on the day of the race?

Unfair way to set up a race:	What is your idea for making it fairer?	Does your idea involve:
		<input type="checkbox"/> <b>controlling variables?</b> <input type="checkbox"/> multiple <b>trials</b> ? <input type="checkbox"/> <b>objective</b> measurement?
		<input type="checkbox"/> <b>controlling variables?</b> <input type="checkbox"/> multiple <b>trials</b> ? <input type="checkbox"/> <b>objective</b> measurement?
		<input type="checkbox"/> <b>controlling variables?</b> <input type="checkbox"/> multiple <b>trials</b> ? <input type="checkbox"/> <b>objective</b> measurement?