



REACTION!

A reaction is a response to some treatment, situation, or stimulus. Reactions occur in a number of different ways and in a number of different situations. From the way we interact with each other, to complex scientific procedures, reactions are happening everywhere!

This year, the Australian STEM Video Game Challenge is looking for games that explore or address the theme of 'REACTION!'

How you and your team incorporate this theme into your game is completely up to you! We're looking for creative, engaging and fun responses to the theme – they can be very literal and direct, or highly conceptual. Let your imagination run wild!

To help give you some starting points, here are a few different types of reaction for you to consider:

Chemical Reaction

Have you ever combined vinegar and baking soda? What happens?

What happens when a certain amount of heat is applied to gunpowder?

When certain chemical compounds are mixed together, or exposed to certain conditions, exciting and sometimes unpredictable things can happen! These things are often referred to as Chemical Reactions and are used in a number of different scientific and industrial processes to create products and materials that we use every day.

? Can you think of some other common chemical reactions and their uses?

✂ Play 'Go React'
<http://www.msichicago.org/play/goreact/>

'Go React' is an interactive online laboratory that allows the user to combine different elements from the Periodic Table to generate chemical reactions. If you haven't learned a lot about chemical reactions yet, use the "Featured Reactions" section to get you started.

? Can you think of some other games that use mixing and matching of different elements to cause reactions?

? Can you think of some other games that require combining properties or characteristics of object or ingredients to help the player progress?

Reaction Time

Imagine the runners on the starting line for a race.

The starter yells "Ready? Set? GO!" and all of the runners take off.

How quickly do they leap into motion?
Is it the same for each runner?

Reaction time is about the time it takes for messages to travel from the brain to other parts of the body, or how quickly we adapt to sudden changes in circumstance or situation.

? Can you think of some other situations that test our reflexes?

✂ Take the 'Reaction Time Test' online.
<https://faculty.washington.edu/chudler/java/redgreen.html>

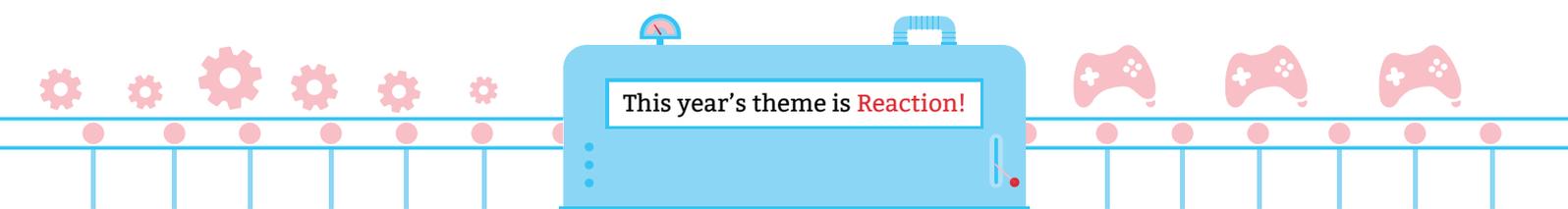
? What was your quickest reaction time?

? What was your average reaction time?

? Have someone else take the test; how did your score compare to theirs?
Did you feel competitive with the other person?
Did you want to be faster?

? Could you use different ways of reacting in your game?

? Could you use the element of competition in your game somehow?





Emotional Reaction

Ever been scared or frightened by a movie or television show?

Or seen a cat video on YouTube that made you laugh?

Been given a hug by someone you care about and felt happy or safe?

Humans react to external stimulus with a wide array of responses. These responses can be seen as emotional reactions triggered by our network of senses and neural processes.

- ? Think about feelings and the things that affect the way people feel – can you make a list of situations and some of the emotional reactions that they may create?
- ? Have you ever played a game that you were really caught up in? A game that had a very detailed story? A game that you were determined to finish? What about these games caused you to feel this way? How did these games influence or produce an emotional reaction from you?
- ? Do you think emotion plays a role in a good game?

Allergic Reaction

Do you get hayfever in the Spring?

Ever broken out in a rash after coming into contact with a particular substance?

Allergic Reactions are a hypersensitive response by the human body's autoimmune system after being exposed to an allergen (stimulus). They present themselves in different ways to help defend the body against things that are perceived to, and range in severity

- ? Put yourself in the position of the human body's immune system. What do allergens look like to the immune system? Are they seen as friends or enemies?
- ? What sorts of things are used to treat allergic reactions?
- ? What might these things look like to the immune system?
- ? How could these sort of relationships be used inside a game?

Chain Reaction

Imagine thousands of dominoes lined up one behind the other; what happens when you know the first one into the second one? What effect does that have on the third one? The fourth one?

Chain Reactions occur when an initial action (stimulus) sparks a series of events in succession, with each event acting as a stimulus, or catalyst, for the next.

- ? What are some other examples of chain reactions that you can think of?
- ? Does the same thing happen at each stage of a chain reaction?
- ? Can you think of an example of a chain reaction that features different things occurring at different stages?
- ? Play through some of the puzzles featured in 'The Incredible Machine'.

https://archive.org/details/the_incredible_machine_1992

Note the way mechanical chain reactions are used to solve each puzzle, and the role the player has in helping to engineer each solution.

What are some ways you could use or incorporate this play mechanic in your game?



Remember: These ideas and questions are just the beginning of your game development journey.

The Australian STEM Video Game Challenge is all about creativity and imagination – we can't wait to see how you REACT to our theme this year, and we look forward to playing awesome games made by you!

For helpful tips, tutorials and resources on game design and development, be sure to visit the 'Student Resources' section of our website!