

## What conditions make the best spin for me?

**AGE RANGE: 5-7 years**

### OVERVIEW

Using 'Izzy Jones's Quantum World' pupils meet the character of Izzy - a young girl trying to find her place in the world. In her search for finding the place that allows her to be her best, the story subtly illustrates how important it is for quantum researchers to find the conditions that best suit their experiments. Pupils observe how factors (variables) around them affects their results. They get physically involved in spinning and experiencing how it feels when they change one condition (type of footwear) and then another. Pupils explore how different things they put on their feet changes the way they perform their spin. This enquiry develops foundational understandings of 'variables' - something that can be changed in an experiment and their effects.



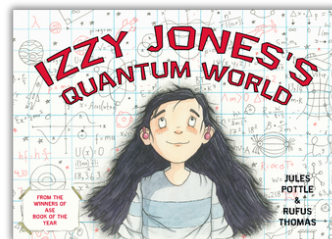
### LEARNING OBJECTIVES

- Experience how a change has an affect
- Develop understanding of the term 'variable'

### WORKING SCIENTIFICALLY



- Perform a simple test
- Observe closely, using simple equipment
- Use their observations & ideas to suggest answers to questions



### KEY WORDS

- variable
- change
- effect

### RESOURCES (groups of 3-4)

A variety of things to put on feet, e.g.

- socks: cotton, bed, trampoline (grip)
- outdoor shoes
- indoor shoes, pumps (ask pupils to bring a few pairs from home if they can)
- an open space/hall

### TO SUPPORT TEACHING

- [Izzy Jones story read video](#)
- [5-7 Great Quantum World Video](#)
- [Book: 'Izzy Jones's Great Quantum World', by Jules Pottle, ISBN:9781739939939 \(optional\)](#)
- [5-7 Great Science Prediction Prompts](#)
- [5-7 Conclusion Creators](#)



The [Careers Chat](#) resources give pupils time to learn more about research scientists, Maddy and Jess, as well as author Jules Pottle!



Maddy's Video Chat



Jess's Video Chat



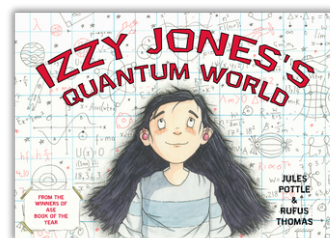
Jules's Video Chat

# Step-by-step guide

Read Jules Pottle's story *Izzy Jones's Quantum World* or watch the [story read video](#).



1. In the story, Izzy is trying to perform her perfect spin. Ask pupils to spot what affected her when she was spinning. Explain that some of the conditions around Izzy affected her performance - what were they? Explain that we can change parts of our science investigations and see what effect that has. We use the word **'variable'** to describe something we change and measure.



2. Pupils will work in pairs to investigate the question, **'What conditions make the best spin for me?'**

Explain that they will be spinning around and investigating how changing their footwear (socks and shoes) affects them. To elicit what they think, support them by asking them to develop a prediction.

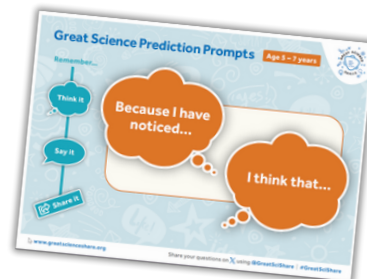
Examples could be:

> *I think that the fluffy socks will make me spin faster*

> *Because I wear pumps instead of socks my spin will be slower*

> *I think that the grippier socks will make me wobble about less when I spin*

To create a class prediction use the **5-7 Great Science Prediction Prompt**.



3. Pupils work in pairs to select at least 3 different pairs of shoes or socks that they will use. Ask them to decide where they will do their investigation - perhaps they could use the school hall, playground, carpet area, tile, grass area etc. Explain that wherever they choose should stay the same when they change the footwear. This is important because they must only make **one** change at a time.



4. Give instructions that pupils will have time to perform their spins. They should do a spin (twizzing round) in all three pairs of socks/shoes. To record their results they can put their pairs of socks/shoes in rank order for which condition created their 'best' spin - good, better or best. This could simply be in labelled piles or best-worst order. (Take a photo if you wish to record this).



5. Compare the results between groups/class and identify any patterns.

Ask pupils to draw a simple conclusion, using the [5-7 Conclusion Creator](#)

E.g.

*I changed fluffy socks to grippy socks.*

***I found out*** that my spin was the best with fluffy socks. ***I think this was because*** they're soft and were slippy on the wooden floor. When I changed to grippy socks, I couldn't spin so well.



6. Encourage pupils to share their observations. They could jot a note to Izzy to explain what they found, or compare their results with another class in school. If you share on social media, tag us with @GreatSciShare

[www.greatscienceshare.org](http://www.greatscienceshare.org)

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Good

Better

Best