

# SCRABBLE STATS

## Lesson 2: Scrabble Sources

### Australian Curriculum: Mathematics (Year 6)

**ACMNA131:** Make connections between equivalent fractions, decimals and percentages.

**ACMSP146:** Compare observed frequencies across experiments with expected frequencies.

### Lesson abstract

Students design a themed variation on Scrabble by collecting data on letter frequency in a chosen text source and using their data to determine new letter point values.

### Mathematical purpose (for students)

We will propose new letter scores for Scrabble, based on a certain theme.

### Mathematical purpose (for teachers)

To calculate relative frequency and use data to construct arguments.

Suggested presentation    Two lessons of one hour each.

Vocabulary encountered    Lesson materials

- frequency
- relative frequency
- *2a Scrabble Sources* PowerPoint (for display)
- A range of texts available for analysis (see [Teacher Background Information](#))

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We value your feedback after this lesson via our website.

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# Teacher Background Information

In this lesson, students investigate how letter frequency might vary across different texts or genres.

If you have access to an official themed Scrabble set (e.g. Scrabble: Harry Potter Edition, Aussie Scrabble), you can use this as the focus of the lesson. These sets include special lists of themed words that will score extra points. Students can investigate letter frequency in these word lists and propose a new scoring system for the game that reflects the makeup of these words.

Alternatively, students can choose a theme they would like to use as a Scrabble theme, and then find their own themed word lists, for example by searching online for a [Harry Potter glossary](#) or a [Star Wars vocabulary list](#).

As another option students can find a section of text such as a book chapter, movie script, or blog post, and turn this text into its own Scrabble theme by collecting data on its letter frequency. Some useful online sources for text include:

- Non-copyrighted ebooks on [Project Gutenberg](#) and [Project Gutenberg Australia](#)
- [Wikisource, the free library](#)
- [The Internet Movie Script Database](#)

If there are classroom texts being used in other subjects you may choose to use those here as well.

This activity is streamlined if students have digital text samples so that they can use technology to count letter frequency. One easy strategy is to use “Ctrl-F” to “find” each letter and count how many instances are found.

## Introduction

Look at some officially licensed/themed Scrabble sets (slide 2 of *2a Scrabble Sources*). Discuss: *How might you expect these Scrabble games to differ from Classic Scrabble?*

Explain that these Scrabble sets have one big difference from Classic Scrabble: players who use words from a special “theme words list” will get bonus points. For example, Aussie Scrabble gives bonus points for Aussie slang such as “brekkie” and “arvo”; Harry Potter Scrabble gives bonus points for character/actor names.

Ask: *can we take this theme one step further by changing the letter point values to match the theme, too?*

## Explore

Students use a text source as described in the [Teacher Background Information](#) and collect data on its letter frequency. They can repeat the process from Lesson 1: counting the frequency of each letter, calculating the relative frequency of each letter, and assigning a point value to each letter.

Before beginning this process, have students make some predictions about what they will find. For example: *I am making The Hobbit Scrabble. I predict that the letter “B” is used a lot in The Hobbit because it is used in Bilbo’s name and in the word “hobbit”. I think Hobbit Scrabble should give the letter B a value of 1 point, not 4.*

As in Lesson 1, after assigning each letter new point values, students identify a word that has a high value in their themed Scrabble but a low value in classic Scrabble, and vice versa.

# Reflection

Pairs of students present their new version of Scrabble to the class. They present their set of letter values and their high-scoring/low-scoring words, as well as their justifications.