

Fi-sci pattern mapping

with Dr Rhona Trauvitch

How can you find analogies of science in fiction?

“My background is in fiction, so I prefer to begin on the science side,” says Rhona. “This way, when I look for an analogous concept, I have a larger knowledge base to draw from. But one can navigate the steps of the fi-sci pattern mapping process in any order.”

Here’s how Rhona outlines the procedure in her book [25-26]:

We start by establishing an expression that represents the science phenomenon’s pattern, for instance,

A [quantum particle] is simultaneously {in state p} and not {in state p}.

This science (S) expression includes details specific to physics. I have placed the science terms in brackets because these are the terms we will attempt to substitute with their analogues in another domain.

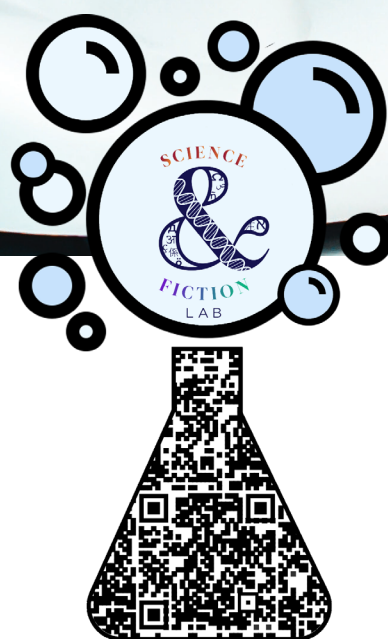
We refine the S expression into a generalised version that represents just the phenomenon’s shape, without the particulars of science. The template, or T expression, is a distillation of the S expression, the idea being that by working with a neutral iteration of the pattern we may more readily recognise its manifestation in fiction. To arrive at this T expression, we replace the science terms in the brackets with ones that are discipline-neutral, but we do not alter the words outside the brackets so as to preserve the relationships among the pattern’s components:

An [entity] is simultaneously {p} and not {p}.

This neutral expression facilitates the substitution of terms in the target domain (science) with terms in the source domain (fiction). Such substitution renders the fiction (F) expression,

A [character] is simultaneously {fictional} and not {fictional}.

“Finally, I try to think of a work of fiction or a fictional situation to which I could apply the F expression,” says Rhona. “In this case, I was looking for an example in fiction whereby a character is simultaneously fictional and not fictional – like the Muppets!”

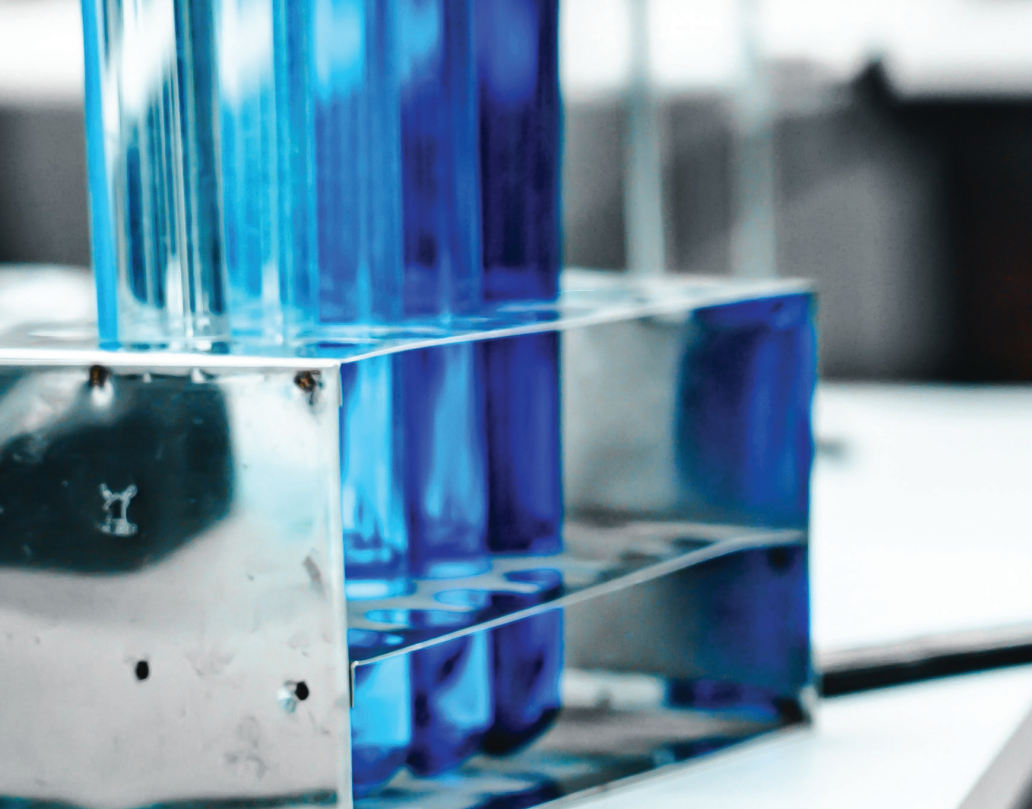


The fi-sci pattern mapping flowchart

Rhona has also developed a flowchart if you prefer to use a graphic method to develop your fi-sci analogy (see next page). Follow these steps in any order you like to populate the flowchart with the elements of your analogy [27]:

- **Box 1:** Identify a science phenomenon
- **Box 2:** Identify an example of this phenomenon
- **Box 3:** Establish a science expression that represents this phenomenon’s pattern, with science terms placed in brackets
- **Box 4:** Convert the science expression into a template expression by replacing bracketed scientific terms with discipline-neutral terms
- **Box 5:** Convert the template expression into a fiction expression by replacing bracketed discipline-neutral terms with literary terms
- **Box 6:** Identify an example of fiction in which the fiction expression manifests
- **Box 7:** Identify the literary phenomenon exemplified in box 6

Note: The three expressions (boxes 3, 4 and 5) should be identical except for the words in brackets.



Portions of this activity sheet quote or paraphrase *Fi-Sci: Avatars of Science in Fiction* by Rhona Trauvitch, published in November 2026 by The Ohio State University Press © 2026 The Ohio State University

Another example of fi-sci pattern mapping

Consider the three expressions Rhona develops in her book's first chapter to convey the fi-sci analogy between choose-your-own-adventure stories and genetic engineering:

S = An [{organism}'s genetic material] is recombined in order to generate variations in this {organism}.

T = An [{entity}'s constituent parts] are recombined in order to generate variations in this {entity}.

F = A [{story}'s segments] are recombined in order to generate variations in this {story}.

An example of the fiction expression can be found in the video game *80 Days*.

Flowchart	Phenomenon	Example	Expression
Science	1	2	3
Template			4
Fiction	7	6	5

Activity

Use Rhona's method to find an analogy of science in fiction that relates to any topic in your curriculum. You could team up with someone who teaches a different discipline to share ideas and look for similarities in the patterns of the topics you teach.

Teach your fi-sci analogy to your students in a lesson that uses the analogy as an additional way to illustrate the topic. You should also explain the concept of fi-sci pattern mapping, showing your students how you developed your analogy as an example of the process.

Then challenge your students to find their own fi-sci analogies. To test whether fi-sci improves their ability to communicate a topic, you could ask them to complete the assignment Rhona and her team developed (See 'More resources' to the right for instructions).

Reflection questions

- What did you and your students find most challenging about locating science analogies in fiction? Why?
- How did searching for science analogies in fiction improve your and your students' critical thinking and interdisciplinary understanding?

More resources

- Visit Rhona's Futurum webpage to find instructions for the fi-sci assignment: futurumcareers.com/how-can-fiction-increase-students-understanding-of-science
- Rhona's book, *Fi-Sci: Avatars of Science in Fiction* (Ohio State University Press, Nov 2026), introduces fi-sci pattern mapping and provides the theoretical underpinnings of fi-sci: ohiostatepress.org/books/titles/9780814216255.html
- Learn more about the work conducted in Rhona's Science & Fiction Lab: scienceandfiction.fiu.edu