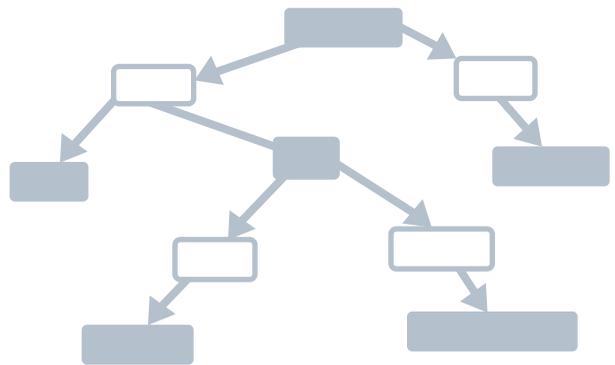


# Worksheet: 4 Steps for Creating Quality Concept Maps

Follow these steps to create strong concept maps that are ready-made for assessment!

Authoring process at a glance:

- 1 Craft a focus question
- 2 List and organize concepts
- 3 Use linking phrases to form propositions
- 4 Iterate



## 1 Craft a focus question

Focus questions provide the context for the knowledge to be assessed. Use this section to practice writing a focus question.

### Tips:

- Pick a focus question that will elicit the kind of knowledge you want to diagram
- It's okay if the focus question changes as you edit your map

**What is the topic that the concept map will cover?**

*Example: Structure and Properties of Matter*

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**What is the most important idea related concerning this topic that you want your students to be able to explain?**

*Example: Molecules make up all types of matter in the universe, and how those molecules are arranged determines a matter's state.*

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**What are three questions that could elicit this knowledge?**

*Examples: What is matter made of? What determines matter's state? How does molecular structure affect matter's state?*

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**Out of the three questions you just wrote, which makes the best focus question?**

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**What kind of content and structure do think your map will use?**

*Examples: factual, reasoning, compare and contrast, tree, cycle*

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## 2 List and organize concepts

Concepts can be events, objects or ideas. Use this section to practice listing concepts to be used in a concept map.

### Tips:

- ↳ Concepts should be short and concise and not sentences
- ↳ Create a “parking lot” of 10 to 30 concepts to start
- ↳ Organize concepts hierarchically by placing the important, overarching concepts at the top and the supporting detail concepts below

What concepts could help answer your focus question? List below.

**Objects** (e.g. H<sub>2</sub>O, ice, water, steam, molecules, particles)

**Ideas** (e.g. weight, space, change, property, observation, measurement)

**Events** (e.g. boil, evaporate, freeze, melt, condense)

### 3 Use linking phrases to form propositions

Linking phrases describe the relationships between concepts to form **propositions** – the building blocks of knowledge and thinking. Use this section to identify some linking phrases that connect your concepts.

#### Tips:

- Add *crosslinks*, connections between separate branches of your map, to add detail and nuance to your map content
- Check to see if linking phrases are repeated and differentiate where necessary
- Make your linking phrases specific. Consider the word, “has,” which can mean multiple things. A good replacement could be “owns,” “contains,” or “consists of”
- Use arrow direction to specify how propositions should be read. “Earth – revolves around – Sun” is unclear without an arrow. “Earth - revolves around → Sun” is clear and valid

Add linking phrases below to complete each proposition. Draw an arrow to indicate the direction of the proposition.

Coffee \_\_\_\_\_ Caffeine

Clouds \_\_\_\_\_ Rain

Branches \_\_\_\_\_ Trees

Heart \_\_\_\_\_ Blood

Envelopes \_\_\_\_\_ Mail

Pollen \_\_\_\_\_ Allergies

## Commonly used linking phrases

Consider the examples below as you create linking phrases that seem most relevant to the map you want to create.

<b>Causal</b>	can lead to   causes   requires   is because of   creates
<b>Classifications</b>	involves   is a type of   includes   belongs to is a part of
<b>Nominal</b>	which are/is   is a   i.e.,   such as   is also known as
<b>Properties</b>	comprises   has/have   is defined by   is made up of is a part of
<b>Explanatory</b>	explains   accounts for   is reason for   is required to entails
<b>Procedural</b>	is followed by   produces   results in   prompts comes before
<b>Historical</b>	became   evolved into   preceded   led to brought about
<b>Qualifying</b>	may/may not   is more likely than   must never can sometimes be   is always

## 4 Iterate

Expressing mental models is a creative exercise. As you make connections and the structure of the map takes shape, it will inevitably inspire even more concepts and connections.

### Tip:



If the map starts to take directions that are not directly related to the focus question, consider creating new maps to explore those new directions

**Are all the propositions you've created directly related to your focus question?**

A: Yes

B: No

**If you answered “no,” which next step seems most appropriate?**

A: Revise the focus question to be broader

B: Revise the propositions (concepts joined by linking phrases) to align with the focus question

C: Create an additional map with a different focus question

**Want more tools and tips for guiding concept map-based activities in your classroom?**

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