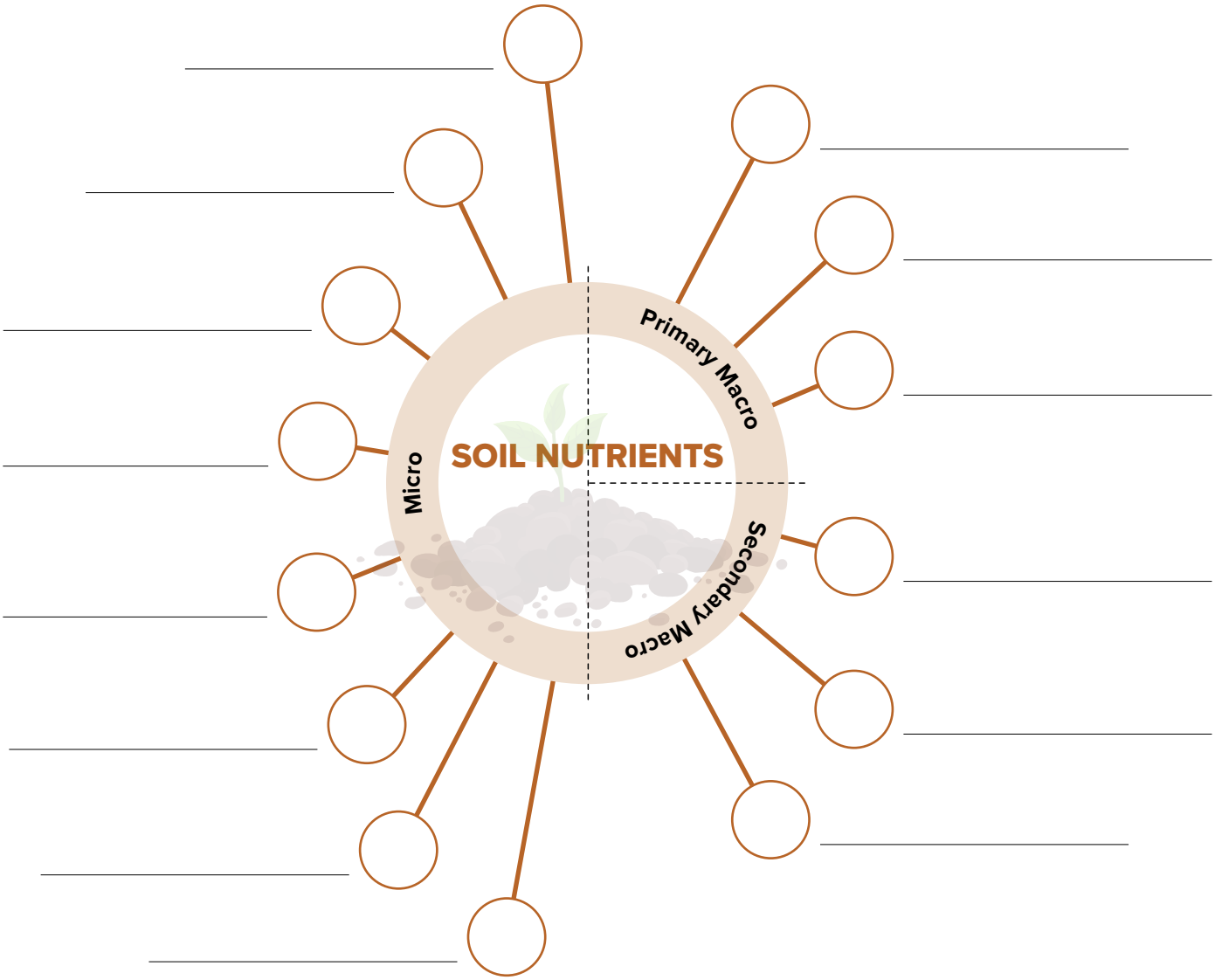
Soil's Chemical Underbelly WebQuest

Scan the QR code or click on the link to view the poster *What are soil nutrients*.

What are soil nutrients https://www.fao.org/3/ca7394en/ca7394en.pdf

1. Add the nutrients that soils provide to the Soil Nutrients wheel below. Write the chemical element symbol in the circles, and full names next to each.



This resource has been developed by Primary Industries Education Foundation Australia, Soil Science Australia and Soils For Life, supported through funding from the Australian Government's National Landcare Program.

Soil's Chemical Underbelly WebQuest (cont.)

Scan the QR code or click on the link to answer the following questions.

- **Plant nutrients in the soil https://www.dpi.nsw.gov.au/agriculture/soils/soil-testing-and-analysis/plant-nutrients**

2. Complete the following sentence. Plants need nutrients because:

3. Complete the following table to summarise the role of the primary macro nutrients.

Nutrient	Symbol	Function/s in plants
Nitrogen		
	P	
Potassium		

4. In terms of plant requirements, identify the difference between macro and micro nutrients.

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5. Scan the QR codes or click on the links to view the following:

- **What is the pH scale** (3:10) https://www.youtube.com/watch?v=ckbsHM2igT0&feature=youtu.be

- **Soil pH and nutrient availability** (3:57) https://www.youtube.com/watch?list=PL4VpwshlrmrKRJ37LKFw4dzSEycBRT2ui&v=BouMFj9acX0&feature=youtu.be

- **What is soil pH** https://www.fao.org/3/ca7162en/ca7162en.pdf

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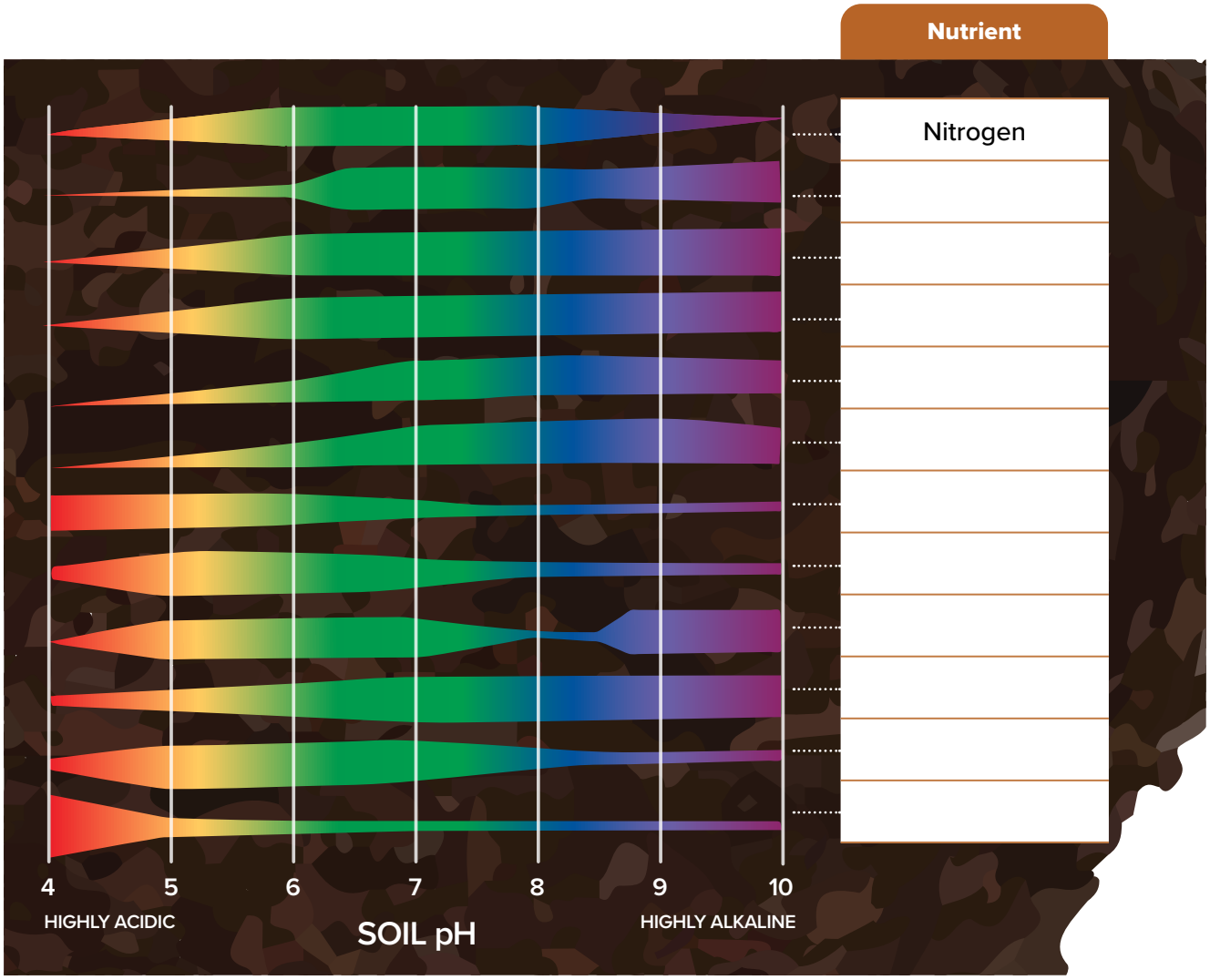
6. Fill in the blanks (right-hand side) for the nutrients showing the pH at which they are most readily available. The first one has already been done for you.



7. What is the ideal soil pH range for most plants to thrive? _____

8. How can acidic soils be made more alkaline?

_____

_____

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Crops grown in soils with a low cation exchange capacity struggle to absorb the nutrients needed for growth and plant health. Scan the QR code or click on the link to to view the video *Cation Exchange*. Answer the following questions.

- **Cation Exchange** https://www.youtube.com/watch?list=PL4VpwshIrmrIFCf_Y595qkQh5UMXp0uOn&v=HmEyymGXOfI&feature=youtu.be

9. What is the charge on a cation?

10. Which particle in the soil do cations adhere to?

11. What happens to the ions when water passes through if they are not attached?

12. Explain how plants obtain the cations that they require from the soil.

13. Describe what must be done to the soil if it has a low cation exchange capacity to grow healthy crops.

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