

S.T.E.A.M. AHEAD into one wonderful week of wheat!

All the resources for this sequence are housed on Padlet:

<https://padlet.com/suepratt/agriculture-the-ultimate-stem-subject-3r8ip8v05zxhrfgv>

In South Australia, 4500 grain farms produce nearly 13 million tonnes of grain annually. Wheat has the largest market, contributing to domestic and international trade worth billions of dollars. (*South Australian grains infographic pir.sa.gov.au*).

Introduce the South Australian grains industry by showing the PIRSA grain industry video <https://youtu.be/pWyZlelK1nl> and providing a copy of the grains infographic [South Australian grains infographic](#).

The activities focus on different stages of the wheat production chain – the seed for planting, the growing crop, the harvested grain, the dough produced from the grain and the final product - bread!



SAFETY ALERT: This teaching sequence involves working with grain and flour containing gluten. Please plan suitable PPE and SOP for participants with gluten intolerance or allergy.

Whet the appetite of your students for wheat by starting with a sensory experience with two loaves of bread. Prepare the loaves prior to the lesson and bring them in freshly baked. Complete the GRDC sensory analysis activity on page 16 [grdc-grains-gluten-carbs-fa.pdf](#)

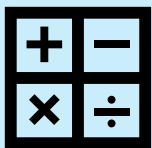
TIP: You can source wheat seed by contacting a grower or purchasing at fodder or whole food stores.

Finish this introductory session by kickstarting the student's understanding of the origins of great bread by placing some wheat seeds on cotton wool in a dish and dampening it well. Over the next few days, observe the wheat seeds germinating, identify key structures and practice some wheat vocabulary:

seed	germination	embryo	seeding
grain	emergence	shoot	harvest
coleoptile	radicle	yield	growing season
cotyledon	endosperm	monocotyledon	milling

EXTENSION: You could calculate a germination percentage and discuss why farmers might want to know this.

TIP: If you have limited time, you could divide your class into 5 groups and allocate one group to each of the STEAM AHEAD activities. However, if you have more time, allow students to explore each of the STEAM AHEAD activities individually or in small groups.

	SCIENCE	Collect three flour samples and compare dough qualities by conducting simple tests. Follow the <i>Testing dough quality</i> guide sheet
	TECHNOLOGY	Use NDVI imaging to investigate the vigour of a growing wheat crop. Follow the <i>How to go data farming</i> guide sheet
	ENGINEERING	Build a device to separate the chaff and contaminants in the harvested grain so that it is fit for human consumption. Check out the wheat quality guidelines to understand the strict standards that are applied. Wheat Standards 2025_26.indd
	ART	Design an infographic that shows each of the steps of the wheat production chain in Australia.
	MATHEMATICS	Using a sample of clean wheat, calculate how many grains of wheat are needed to produce one delicious and nutritious loaf of bread.

Further resources:

<https://primezone.edu.au/resource/super-seed-kit/>

<https://www.agtbreeding.com.au/varieties/wheat>

<https://primezone.edu.au/resource/growing-australian-grains-seven-to-ten/>

<https://primezone.edu.au/resource/grdc-grains-careers-card-game/>

<https://grdc.com.au/resources-and-publications/all-publications/educational>

Disclaimer: This curriculum resource is designed to support schools in delivering quality food and fibre content to students. It has been developed by Lead Ag Teacher Sue Pratt, AgCommunicators – a registered teacher with more than 30 years' experience in teaching agriculture and science. Prior to using this resource, teachers should conduct a risk assessment in line with their site's curriculum and safety guidelines and check all links are appropriate to the school's online policies. The risk assessment may include provision of specialised Personal Protective Equipment and review of the school's policies and procedures on chemical use.