

Te Paepae o Aotea Science Badge

AGRICULTURE			
Complete 20 stars			
Rating	No		Sign
**	1	Make a model of a box brace (used in fencing) and draw a diagram explaining how it works	
**	2	Cattle and sheep need to be drenched for internal and external parasites. Make a poster or PowerPoint illustrating three different parasites and the methods of treatment for each parasite you have chosen	
***	3	Help out on a farm with some routine stock handling work e.g. drenching, crutching, docking/tailing, weaning etc. Keep a photographic diary of what happens and present in PowerPoint, booklet or poster form	
**	4	Winter feed is essential for maintaining and growing livestock through winter. Explain with the aid of diagrams / pictures / photographs the types of green feed with details, their differences (dry matter / moisture content) and their advantages / disadvantages	
*	5	Machinery is an important part of modern farming. Make a collection of pictures showing 5 different types of implements. Name and explain their functions	
***	6	Obtain some wheat or barley seed and germinate two or three seeds in each of our pots of sand. When the seeds have emerged and grown to 3 to 4 centimetres, do a controlled test of the results of applying nitrogen fertiliser. Dissolve urea granules in 25mL water at different rates e.g. 0 urea (control), 2 granules, 4 granules, 6 granules. Water the fertiliser into each pot and record the results of the growth over a period of 3 – 4 weeks. Graph the results and draw conclusions explaining your discoveries.	
**	7	Describe, with the aid of diagrams, 3 different dairy or beef breeds used on New Zealand farms. Comment on their strengths and weaknesses, country of origin, etc	
**	8	Make a collection of commercial wool based	

		yarns. Mount on a card and label each. Explain the characteristics of each type of yarn and what it is likely to be used for (such as fine knitting wool, carpets etc). What breed of sheep is the wool likely to have come from	
**	9	Make a poster of 5 different hazards typically found on a farm and what safety precautions should be taken. Consider such areas as stock, machinery, chemicals, grain silos, effluent ponds, quad bikes, etc	
**	10	Organic farming depends heavily on finding 'natural' solutions to fertiliser, weed control and general plant and animal health. Prepare a chart of two columns comparing/ contrasting the conventional approach to these issues with the organic approach	
**	11	Identify 3 different problems farmers have to deal with that require some form of chemical treatment (eg. Weeds, parasites, plant diseases etc). Name the chemical, and what it treats, and any handling precautions/ dangers associated with it	
**	12	Use a labelled diagram to illustrate how central pivot irrigators work	
*	13	What is the process of crop rotation and why is it necessary? Make a report with examples	
*	14	On a map of New Zealand indicate the important forestry areas. List the types of timber grown and what products are exported	
**	15	What are some of the different soil types and what are their characteristics? Explain, with labelled diagrams, why it is important for a farmer to know the types of soil on a farm	
***	16	On a map indicate the main wine growing regions in New Zealand. What different types of wine are produced and list six major producers and indicate where they are located. Describe what grape varieties are suited to their vineyards	
**	17	Design two original hand drawn posters illustrating the different cuts of meat from sheep and beef cattle	

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***	18	What is Foot and Mouth disease? Prepare a chart / PowerPoint showing the symptoms and where on the animal they are found. Explain how it affects the animals and how the spread of the disease can be prevented	
*	19	Report on what MPI stands for and its functions in relation to agriculture	
**	20	Make a chart suitable for airline passengers indicating what types of products / fruit, etc are not allowed to enter the country and why. Explain how New Zealand Customs control this	
**	21	Keep a running record, with photos, of how to look after a pet lamb or calf. Make a chart giving 6 guidelines on how to rear a lamb or calf	
**		Effluent from dairy farming can be a resource and / or a pollutant. Make a booklet describing why dairy farms often have a problem with effluent and explain how it can be used as a resource and what the farmer can do to reduce the chances of it becoming a pollutant of water ways, groundwater etc. This could be done by researching the internet, or for an extra star, by interviewing a local dairy farmer	
**		Agricultural practices have an impact on climate change. Choose one type of agriculture and present information as an illustrated talk or poster about how it can affect climate change, both positively and negatively	
**		Clover is often grown by New Zealand farmers. Explain, in an illustrated leaflet, the advantages and disadvantages of growing clover	