Department of Agriculture and Food
GOVERNMENT OF WESTERN AUSTRALIA

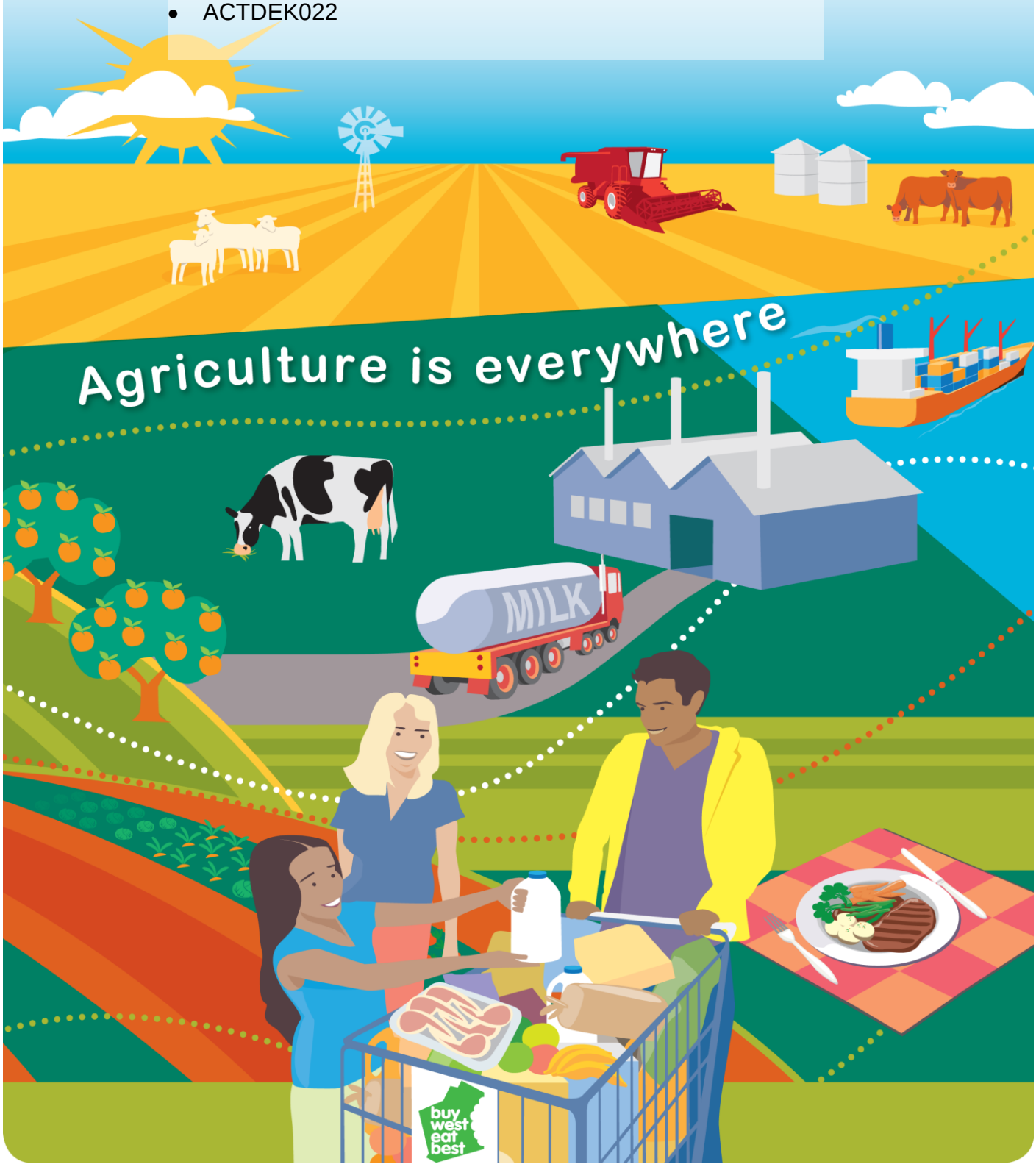
ROYALTIES FOR REGIONS

Jobs in your lunchbox

Food storage and handling

Science and Technologies

- ACSIS064
- ACSIS231
- ACTDEK022



Food storage and handling

Lesson overview

Students will investigate the importance of food handling and storage quality controls in the packing and processing of fresh produce.

Australian Curriculum: Science and Technologies

Science Inquiry Skills

Year 4 - With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSIS064)

Year 5 and 6 - With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be (ACSIS231)

Design and Technologies Year 5 and 6

Investigate the role of food preparation in maintaining good health and the importance of food safety and hygiene (ACTDEK022)

Resources

- Glitter
- Moisturiser
- Antibacterial hand wash
- Snap lock bags
- Sliced bread
- Digital Camera
- Misting bottle
- Assorted fresh vegetables
- Activity Worksheets

Tuning in

Mix glitter and moisturiser and ask one student to put it on their hands. They then shake hands with another student and pick up an apple. Students to observe the transfer of 'glitter germs' and think about the impact handwashing would have on this interaction.

Whole class introduction

Food can be stored and handled many times between leaving the paddock and landing on your plate. Quality assurance and food safety are very important to the food industry as consumers want to be sure their food is fresh, has been handled in a hygienic manner and is healthy.

Germs are very easily transferred from hands to produce and hygienic handwashing practices are important to assure quality and ensure food is safe to eat. Handwashing is one of the most basic food safety practices and it is important at all the stages of production system. Handwashing practices reduce the amount of harmful bacteria that are transferred onto your food.

Storage methods are also important to ensure optimal freshness, limit food spoilage and ensure a quality product. Correct storage of food also ensures that the nutrient content of food is maintained. Not all fruits and vegetables need to be stored in the refrigerator as different fruits and vegetables require different storage methods. These methods are followed in shops and by us at home to ensure our food stays fresh for as long as possible.

Many fresh foods are highly perishable. The following activities help students to understand how correct storage and handling ensures food safety, quality and reduced wastage.

Student activities

Exercise one – Can the transfer of germs be reduced by handwashing?

Teachers assist students to design a scientific investigation that tests whether handwashing reduces the transfer of germs. Children are encouraged to identify the independent variable (What they will change), dependent variable (What they will measure/ observe) and control variables (Things that will stay the same) in the following scientific investigation.

Each group will need four snap lock bags and four slices of bread. Label the bags as

1. Control

2. No handwashing

3. Rinsed with water

4. Washed with soap

Students use clean tongs to place the control bread into a bag.

After recess, a student is selected to rub their unwashed right hand on a piece of bread and place it in bag two.

The left hand is then rinsed with water and rubbed onto bread for bag three.

Finally the student thoroughly washes both hands with soap using the correct technique and dries carefully before rubbing hand onto bread for bag four. Teachers may wish to display a poster that illustrates correct handwashing technique.

Spray a light mist of water into each bag. It must be the same amount in each bag and is intended to moisten, not wet.

Seal the bags carefully and observe over the next 10 days. Record your observations using the grid provided and digital images.

WARNING: Do not open the bags due to the growth of mould and bacteria. Dispose of these carefully.

Exercise two – Food storage techniques

Students observe the implication of different storage methods on the following fresh fruit and vegetables over a 10 day period.

Product	Refrigerator	Cupboard	Sunlight
Broccolini			
Banana			
Potato			
Apple			
Carrot			
Mushroom			
Pumpkin (whole)			

Students complete the grid provided in worksheet two and describe their findings.

Teacher notes:

- Broccolini will go limp if not refrigerated. It can be 'revived' by placing in water.
- Banana will go black in the refrigerator and ripen in sunlight.
- Potatoes will go green if exposed to sunlight. Green potatoes can be toxic if eaten.
- Carrots go limp if not stored in plastic and in the refrigerator.
- Apples are reasonably hardy but will last much longer in the refrigerator.
- Mushrooms will wrinkle and drop spores in sunlight and cupboard, the can dehydrate and go slimy if left uncovered in the refrigerator. Best stored in a paper bag.
- Pumpkins have a tough skin and will last a long time without refrigeration.

Exercise three – Based on the findings from your investigations, design a quality assurance poster for a fresh food packing facility or retailer.

Reflection

Many quality assurance procedures are put into place in food packing and processing industries to limit contamination and spoilage of food. What sort of jobs would this create in the agricultural industry?

Teacher notes: Quality assurance is an industry in itself and very important to the Australian Agricultural and Food Industries. Consumers are demanding quality and this means that food retailers are requesting that certain standards are met at all stages of production. Jobs would include research, development of guidelines, compliance officers, creation of signs and posters for farms and factories, specialist transport and logistics for perishables, manufacture of packaging (such as polystyrene boxes that maintain temperature) and quality assurance officers in retail stores. There are also people that provide training to help to ensure that workers involved in processing food are handling the food safely and in a way that prevents contamination of the food.

Worksheet 1 - Investigation

1. We are going to find out

_____

_____

2. Identify your variables

Independent variable *We will change*	Dependent variable *We will measure*	Controlled variables *We will keep the same*

3. To complete our investigation we need the following items

_____

_____

_____

_____

_____

_____

4. My prediction

_____

_____

_____

5. Keep your records

Observations	Bread	Control	No handwashing	Rinsed with water	Washed with soap
Day 1					
Day 2					
Day 3					
Day 4					
Day 5					
Day 6					
Day 7					
Day 8					
Day 9					
Day 10					

- You may need to draw a bigger grid depending on how often you make observations and measurements.

6. Evaluate your results

   i. What happened in your experiment?

   _____

   _____

   _____

   ii. Is handwashing important? Why?

   _____

   _____

   _____

   iii. Was your prediction correct?

   _____

   _____

   _____

7. Insert photographs from your experiment that illustrate the importance of handwashing when handling food.

Worksheet 2 – Food storage

Observe the implication of different storage methods on the following fruit and vegetables over a 10 day period

Product	Refrigerator	Cupboard	Sunlight
Broccolini			
Banana			
Potato			
Apple			
Carrot			
Mushroom			
Pumpkin (whole)			

What did you find out about storing food?