# Lesson 2. Food Safety Basics

## Lesson topics

- Why do you need to know this?
- Meet the microbes
  - The niceys and the naughties:  beneficial and harmful microbes
- Where the microbes live & how they spread
  - Where germs live
  - How germs spread
- Stopping the spread
  - Know how to clean your hands
  - Know when to clean your hands
  - Know how to keep yourself clean and healthy
- Keeping a clean workspace
  - Why we keep our workspace clean
  - Where the germs reside
  - How we kill and control for germs in the workspace

## Learning outcomes

Upon completion of this lesson, learners will be able to:

1. List at least 2 reasons why handling food safely is important.
2. Name at least 2 of the 4 different types of microbes and at least 2 of the main types of illness causing microbes
3. List at least 2 beneficial uses of these microbes in food, and at least 2 harmful effects of these microbes in food
4. Point to, or name, 3 places on their body where harmful microbes generally reside
5. Name at least 2 ways in which harmful microbes can be spread from person to person, and at least 2 ways in which harmful microbes can be spread from person to food
6. Demonstrate, using at least two of the three methods explained in the training, how to kill harmful microbes on their hands to control the spread of harmful microbes
7. Name at least 1 additional method (aside from cleaning hands) of stopping the spread of harmful microbes to other people
8. Give at least 2 reasons why it is important to keep their processing spaces / workplaces hygienically clean
9. When given a photo of their workplace / processing shed (if not able to have training conducted in the processing shed itself) list or point to at least 2 places where harmful microbes are likely to be
10. Describe at least 1 way of killing / controlling for the microbes in the processing shed

## Evidence of learning - required responses and behaviours

| Content summary | Facilitation activity & resource | Desired response &/or behaviour |
|---|---|---|
| **Learning Goal 1:** List at least 2 reasons why handling food safely is important | | |
| • Broad Introduction to supply chain (macro level)<br>• Introduction to concepts of high quality, safe food leading to higher income potential, business sustainability and growth, expanding income generation<br>• Importance of hygiene for preventing illness of people, and spoilage of fruit. | • Slide of supply chain<br>• Story telling of case study<br>• Group discussion of why basic food handling knowledge is important | Learner lists:<br>Personal safety implications<br>○ May get sick<br>○ May pass on to family<br>○ May not be able to work when sick, leading to loss of income<br>Benefits for business<br>○ Increased quality of fruit leading to better price per kilo<br>○ Develop strong,brand associated with safe, high quality fruit<br>○ Good brand reputation leads to repeat and expanding customer base, leading to increased business sustainability certainty<br>○ Business able to employ more harvesters year on year as business potentially grows<br>○ Increased potential to expand internationally |
| **Learning Goal 2:** Name at least 2 of the 4 different types of microbes | | |
| Introduce the 4 different types of microbe classifications | • Discussion - ask if class is aware of any food spoilage microbes<br>• Display images of 4 different types of microbes | Learner lists:<br>• Viruses<br>• Bacteria<br>• Mould<br>• Yeast |
| **Learning Goal 3:** List at least 2 beneficial uses of these microbes in food, and at least 2 harmful effects of these microbes in food | | |
| **Sub-goal:** 3a - List at least 2 beneficial uses of microbes in food | | |
| • Images and names of different foods and drinks | • Discussion - ask if class can name any foods and drinks | Learner lists:<br>• Contribute to healthy gut |

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| made with beneficial microbes, and the microbes involved | made with microbes, and which microbes<br>● Display images with different types of microbes aligned with different foods | bacteria<br>● Make yoghurt<br>● Make breads<br>● Fermented foods like sauerkraut<br>● Beer<br>● Wine<br>● Vinegar<br>● *Other traditional microbe uses? Eg Natural yeasts for traditional dampers?* |
| **Sub-goal:** 3b - List at least 2 harmful effects of microbes in food | | |
| ● Images and names of the most common harmful microbes in the food industry; images of spoiled food<br>● image / simple diagram listing common food poisoning illnesses | ● Discussion - ask if anyone has ever had food poisoning<br>● Discussion - ask if anyone has seen rotten food - what did it look like, could they eat it?<br>● Display images of harmful microbes and images of spoiled food | Learner lists:<br>● Illness for humans - food poisoning<br>○ Abdominal pain<br>○ Diarrhoea<br>○ Fever<br>○ Nausea and vomiting<br>○ Tiredness<br>● Food spoilage<br>○ Mouldy bread<br>○ Fungus on fruit and veg<br>○ Salmonella |
| **Learning Goal 4:** Point to or name 3 places on their body where harmful microbes reside | | |
| ● Introduction to where microbes live on and inside human body- beneficial and harmful<br>● Introduce some beneficial microbes and their purpose using images and/ or discussion | ● Recall types of microbes from previous lesson -<br>● Discussion about where microbes are on the human body, both beneficial and harmful<br>● For each person present, test for microbes on hands (if available). | ● Nose(mucus)<br>● Mouth (spit, teeth, tongue)<br>● Hands<br>● Stomach<br>● Bum (faeces)<br>● Belly button<br>● Behind ears<br>● Under arms<br>● Under breast folds<br>● Any fold of skin that is warm and moist<br>● Scalp<br>● In ears |
| **Learning Goal 5:** Name at least 2 ways in which harmful microbes can be spread from person to person, and at least 2 ways harmful microbes can be spread from person to food | | |
| **Sub-goal:** 5a - List at least 2 ways in which harmful microbes can be spread from person to person | | |
| Images of petri dish hand with microbes, noses, coughing, sneezing | ● Discussion - ask how microbes might be shared from person to person | ● Coughing<br>● Sneezing<br>● Shaking hands |

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| | • Tell a story about a typical day (might include going to shops, patting dog on the way, kissing partner goodbye, taking garbage out on the way…), discuss all the places the person has picked up microbes<br>• Display images of microbes in / on different parts of the body | • Touching surfaces where other hands have touched and not cleaned<br>• Kissing / intimacy<br>• cuddling |
| **Sub-goal:** 5.b - List at least 2 ways in which harmful bacteria can be spread from person to food | | |
| | | • Coughing and or sneezing directly onto food<br>• Mixing spoiled food with unspoiled food<br>• Handling food without washing your hands after doing the following:<br>○ Toileting<br>○ Patting animals<br>○ Touching your face, in particular nose<br>○ Touching hands of other people<br>○ Smoking<br>○ Scratching anywhere on body<br>○ touching raw food<br>○ touching mouldy / rotten food |
| **Learning Goal 6:** Demonstrate and / or describe how to kill harmful microbes on their hands and control the spread of harmful microbes | | |
| **Sub-goal: 6**.a - Demonstrate how to kill harmful microbes on your hands | | |
| • Description of different ways of hand washing soap and water, sanitise, gubinge<br>• Video on washing hands properly with water and sanitiser<br>• Demonstration of cleaning hands with gubinge | • Discussion - anyone know how to wash your hands properly?<br>• Class activities based on watching video of hand wash and sanitise. | • NB: Choose from all of the following that may apply<br>• 20 seconds of handwashing, as per video shown in class.<br>• Traditional hand cleaning method - kakadu plum leaves<br>• Correct method of Hand sanitiser |
| **Sub-goal:** 6b - Demonstrate or describe how to stop the spread of harmful microbes | | |
| • Reiterate the importance of handwashing and the role dirty hands have in spreading disease | • Discussion: can anyone name a disease that is easily passed on to someone through dirty hands? (eg, diarrhoea, vomiting bug, coronavirus)<br>• Discussion - how do we stop | • Wash hands correctly, at the following times:<br>• After toileting<br>• After blowing nose<br>• After scratching<br>• After handling spoiled or rotten |

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| | the spread of microbes?<br>● When should we wash our hands? | food<br>● After cleaning<br>● After shaking hands with someone and handling food<br>● After smoking<br>● Before and after eating and drinking<br>● Before handling food<br>● Before beginning work<br>● Before going out to pick fruit<br>● Before and after handling raw food |
| **Learning Goal 7:** Name at least 1 additional method (aside from cleaning hands) of stopping the spread of harmful microbes to other people | | |
| Content summary | Facilitation activity & resource | Desired response &/or behaviour |
| ● Describe other important factors to keeping self and others healthy | ● Slide content, don't come to work sick, wear clean clothes | ● Don't come to work sick<br>● Wear clean clothes |
| **Learning Goal 8:** Give at least 2 reasons why it is important to keep their processing spaces / workplaces hygienically clean | | |
| Rationale for keeping the processing shed clean - the 'why' and motivation to do it | ● Discussion: think about what we've learnt so far, about why we need to keep our hands clean and have good hygiene.<br>● Why do you think we need to keep our processing shed / [insert workplace] clean? | ● Keep yourself safe from harmful microbes<br>● Keep your friends, family, and/or co-workers safe from harmful microbes<br>● Stop the spread of harmful microbes<br>● Prevent harvest contamination and widespread fruit spoilage<br>● So we have a good reputation - people think of our business as providing safe, high quality fruit. |
| **Learning Goal 9:** When given a photo of their workplace / processing shed (if not able to have training conducted in the processing shed itself) list or point to at least 3 places where harmful microbes are likely to be | | |
| ● Identify where harmful microbes are , using photos or in-situ.<br><br>● Demonstration of how harmful microbes can be spread in the processing shed, building on all previous lessons. | ● OPtional Activity: facilitator demonstrates a walk into the shed, after they have been on a toilet break and didn't wash hands properly. They grab the door handle, lean on the door, grab a basket of fruit, put it on the scales, and touch the scale settings to weigh. | ● Door handle<br>● Door frame<br>● Any pens, the desk etc around timesheet / logging / recording stations,<br>● Fruit baskets<br>● Scales<br>● Bagging area<br>● Fruit crates<br>● Shed floor |

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| | • Discussion: Where are all the places you just saw me touch, that have now transferred potentially harmful microbes through the processing shed and onto the fruit<br>• Activity": learners look at photo or processing shed and ID all the places where harmful germs may be. | • Backs of chairs<br>• Chair seats<br>• Bins<br>• Containers with spoiled, damaged, undersized fruit |
| **Learning Goal 10:** Demonstrate and/or explain the step process / procedure for killing and controlling for these microbes safely, on yourself and in the processing shed | | |
| **Sub-goal:** 10a - Demonstrate the steps they will take to kill the microbes on themselves before entering the processing shed | | |
| Reminder to people to wash /sanitise their hands before starting to sort | • Slides<br>• Resource: sign / poster to hang outside shed door about correct hand washing, reminding people to wash hands before processing plums | • Learners respond that they will wash their hands before coming into the processing shed |
| **Sub-goal:** 10b - Demonstrate the process procedure of sanitising the processing shed before processing begins | | |
| • Work with partners on who is responsible / how they want to manage this hygiene safety practice | • Slide content<br>• Resources: Roster system and checklist? | • Work with partners on this<br>• Responsible person wipes down with an antibacterial spray and cloth all the areas that germs are likely to be<br>• Floor is swept each morning, prior to sorting<br>• Floor is washed (? potentially not possible with shed floors… unsure)<br>• Responsible person MUST wash hands again after cleaning. |

# Food safety basics

## for safe, high quality food

QAAFI
Queensland Alliance for Agriculture and Food Innovation

T.H.E.
Traditional Homeland Enterprises

Australian Government
Department of Industry, Science, Energy and Resources

AusIndustry
Cooperative Research Centres Program

# Lesson overview

- Why do we need to know this?
- Meet the microbes
  - The niceys and the naughties:  beneficial and harmful microbes
- Where the microbes live & how they spread
  - Where germs live
  - How germs spread
- Stop the spread
  - Know how to clean your hands
  - Know when to clean your hands
  - Keep yourself clean and healthy
- Keep a clean workspace
- Recap

# Why do we need to know about this ?

# Why do we need to know about this

## Microbial Safety tests

Microbial safe limit - 10,000 or less Colony Forming Units per gram (CFU / g)

- Most within limits, but 2 samples exceeded safe levels, and 1 nearly reached the limit (9000, 14000, 23000 CFU/g)

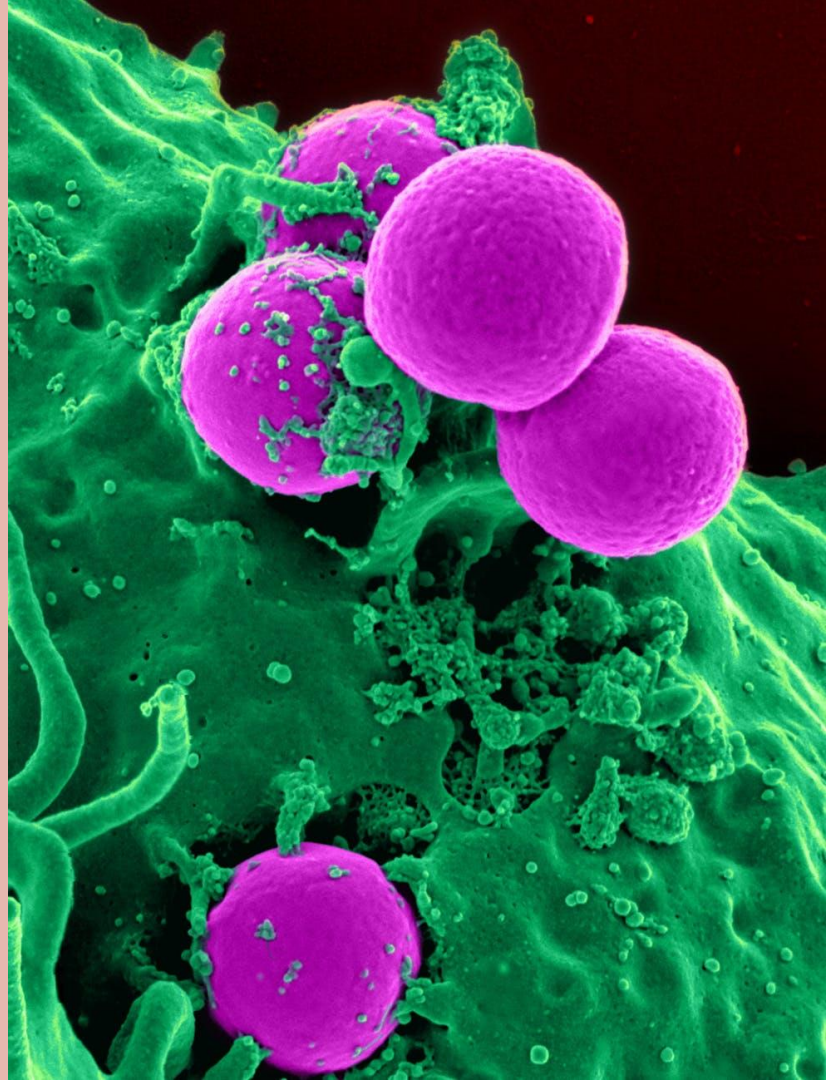
Yeast and Mould safe limit - 100 or less CFU/g.

- Most within limits, but 5 samples exceeded safe level (3200, 1200, 800, 700 and 700 CFU / g).

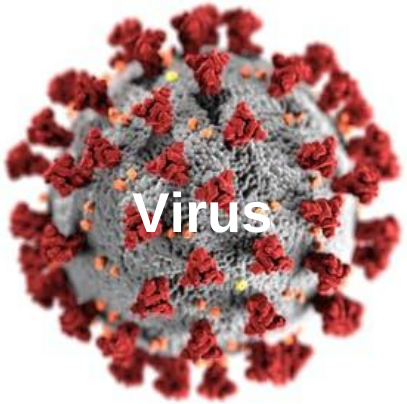
# Meet the microbes

The niceys & the naughties:

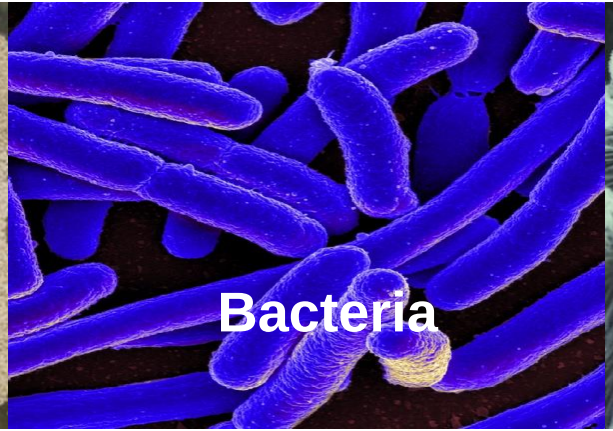
beneficial and harmful microbes



# Meet the 4 different types of microbes

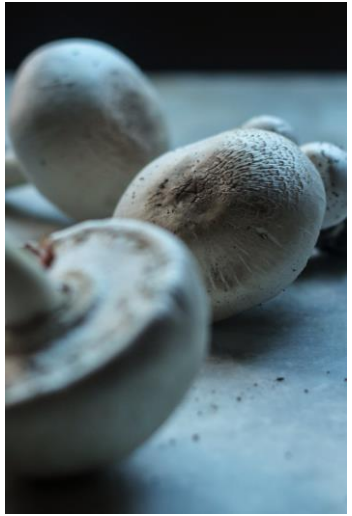







# Let’s have a yarn

First let’s talk about the ‘Nicey’s’.
How can microbes help us in food products?

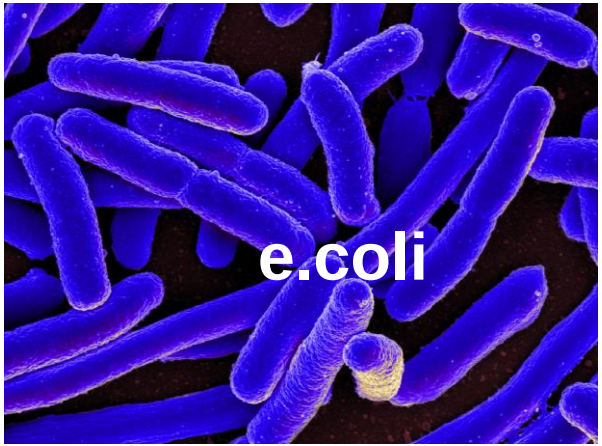


# Let’s have a yarn

What are some harmful impacts of microbes?
(The ‘Naughties’)

# Damage to food

# Harm to people: food poisoning





**Staphylococcus aureus**

# Let’s have a yarn

How do germs get in our food in the first place?

# Where germs live and how they spread

Where germs live

How germs spread





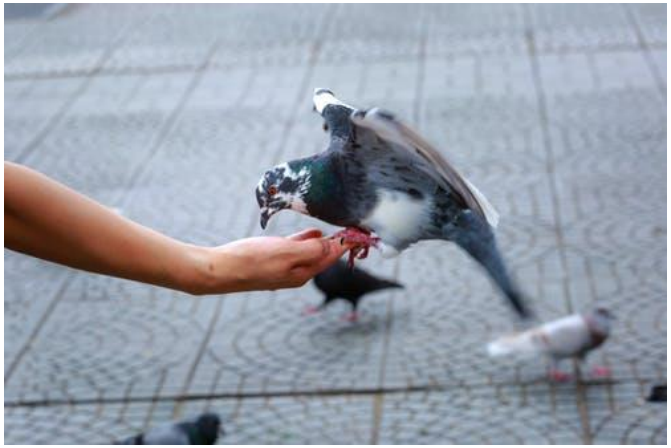


# Let’s have a yarn

How do germs spread from you to someone else?

# Spreading

## From you to someone else

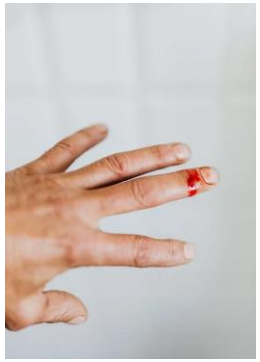


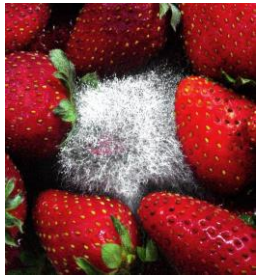
# Let’s have a yarn

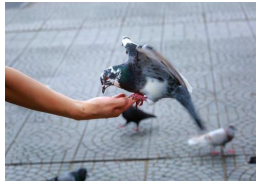
How do germs spread from you to food and from food to you?

# Spreading

## Person to food







# Stopping the spread

How to wash your hands

When to wash your hands

Keeping yourself clean and healthy

# How to clean your hands

3 ways:

1. Wash hands
2. Rub hands with hand sanitiser
3. Clean hands with Gubinge (check with partners if they have a different traditional method, and/or if they are happy to include the gubinge / kakadu hand clean method)

(poster for display in partner communities

https://www.who.int/gpsc/5may/How_To_HandRub_Poster.pdf

# Washing hands

Poster resource
https://www.hha.org.au/component/jdownloads/send/5-local-implementation/76-poster-who-2?Itemid=0 )

# Cleaning hands with hand sanitiser

*[need to provide partners with sanitiser as a training tool & so they can keep one in their processing sheds]*

https://www.who.int/gpsc/5may/How_To_HandRub_Poster.pdf

# Cleaning hands with Gubinge / Kakadu plum leaves

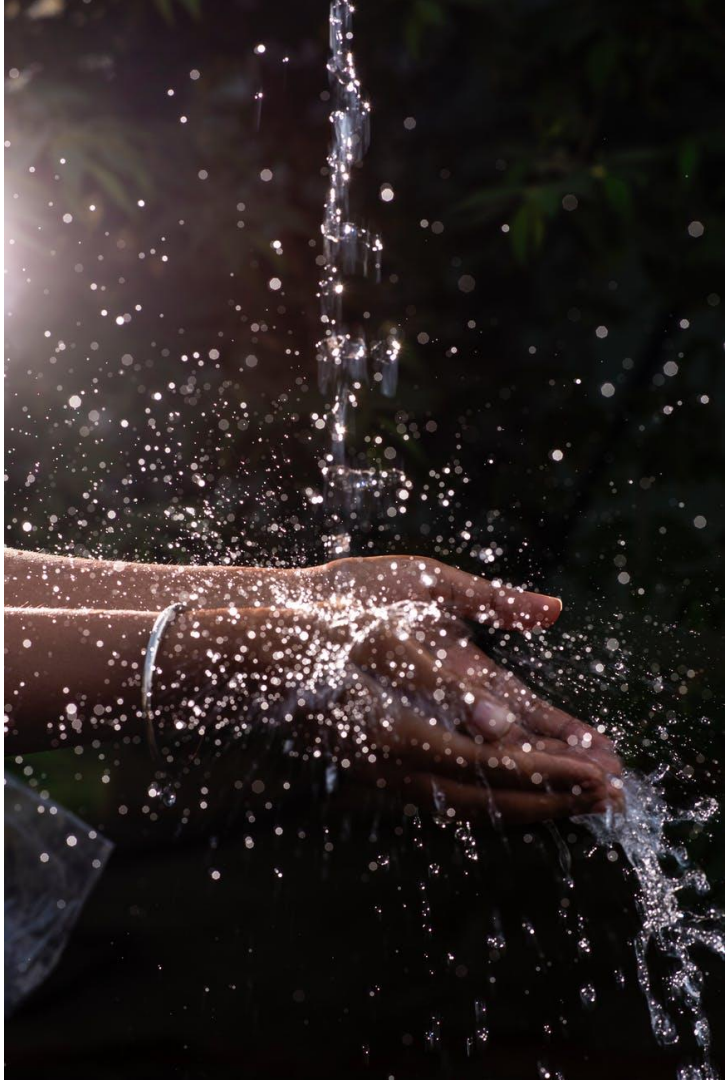
Get induction delivery person to demonstrate ?

# Let’s have a yarn

When should you clean your hands?

# You should clean your hands

- After toileting
- After smoking
- Before and after eating
- After sneezing or coughing into hands
- After wiping your nose or touching your face
- Before handling food
- When hands are visibly dirty



# Come to work healthy

- Only work if you’re not sick
  - Cold, flu, vomiting, diarrhea, food poisoning, fever
- because:
  - you could infect your fellow workers
  - you could contaminate the food

**If you’re sick - don’t pick!**

# Wear clean clothes

Clean clothes contain germs on your body

Dirty clothes are where germs love to live

# Keep a clean workspace

# Keep a clean workspace

## Why?

- Keep yourself safe from harmful microbes
- Keep your friends, family, and/or co-workers safe from harmful microbes
- Stop the spread of harmful microbes
- Prevent harvest contamination and widespread fruit spoilage
- So we have a good reputation - people think of our business as providing safe, high quality, fruit. We have a culture of safety and quality here.

# Identifying where harmful germs are

[insert photo of partner’s shed / processing facility here]. Or, just have a look around shed if that’s where training is occuring.

# Identifying where harmful germs are

[insert photo of partner’s processing facility here, with germ hot spots circled in red] or, point out all the germ hotspots, and where needs to be wiped down.

THEN - work with Partner: Either allocate responsible person for cleaning, or venture owner commits to sanitising hot spot surfaces on a regular basis (ie at the start or end of each day).

Everyone should wash or sanitise their hands on their way into the shed, before they start processing

# Recap what we've learnt

It's important we learn this because ...

Germs can harm us ...

Germs live ...

Germs are spread by ...

We can stop the spread by …

2 places germs reside in our shed are ....


That’s it. You’re done with food safety basics