Primary Industries
Cluster D
The Environment
Assessment Task

Units of Competency:

AHCWRK201: Observe and Report on Weather
AHCWRK209: Participate in Environmentally Sustainable Work Practices
AHCBIO201: Inspect and Clean Machinery for Plant, Animal and Soil Materials

Student Name:_____

Date of Issue: __**23-03-18**_____ **Due Date:** _**13-04-18**_____

STUDENT ASSESSMENT TASK

STUDENT NAME: _____ **Date of Issue:** 13-04-18

Name of VET Course	Primary Industries
Qualification Code and Name	AHC20116 Certificate II in Agriculture
Assessor Name(s):	Dr. Asifo .O. Ajuyah
Name of Task	Cluster D
Units of Competency Assessed	AHCWRK201 Observe and report on weather AHCWRK209 Participate in environmentally sustainable work practices AHCBIO201 Inspect and clean machinery for plant, animal and soil materials
Pre-requisite units	Nil
Assessment Conditions	Access to School Farm
Resources and equipment required for Assessment	Computer with internet access, Templates for the weather observations and Appendix A Biosecurity resource, Farm machinery

Assessment method	Units of Competency	Duration	Due Date
Section A: Written questions and internet research	AHCWRK201 Observe and report on weather	3 weeks	28-03-18
Section B: Written questions and internet research	AHCWRK209 Participate in environmentally sustainable work practices	2 weeks	28-03-18
Section C: Written questions and internet research	AHCBIO201 Inspect and clean machinery for plant, animal and soil materials	2 weeks	13-04-18
Section D: Observation of weather and recording data	AHCWRK201 Observe and report on weather	2 weeks	28-03-18
Section E: Practical of practical work and written questions	AHCWRK209 Participate in environmentally sustainable work practices	4 weeks	0-4-04-18
Section F: Direct observation of practical work and self assessment	AHCBIO201 Inspect and clean machinery for plant, animal and soil materials	1 week	13-04-18

Additional Requirements:

I have special needs and require adjustments to undertake this task. ☐YES ☐NO

Describe here how the task was modified for special needs and/or EAL/D e.g.

- Altering/simplifying the language a used_____
- Providing support staff_____
- Providing tutorial sessions _____
- Providing additional time to complete the task _____
- Altering assessment methods used _____

  Please note, when altering an assessment method such as use of verbal questioning instead of written response teacher must indicate alteration on the task (e.g. **V** written next to question)

STUDENT ACKNOWLEDGEMENT (To be completed before student is assessed)

- I understand the requirements of the assessment task and assessment methods.
- I understand what is being assessed and can perform the tasks described in this assessment.
- I have been provided with information about RPL, Credit Transfer and Assessment Appeals.
- I have notified the assessor of any special needs to be considered during this assessment.
- I declare that the work submitted is my own and has not been copied from another person or source

Student's Signature: ……Name …… Date: .....

Part A: Written

Task Description

- Students will develop an understanding of weather and the impact that it has on farm management through the collation and interpretation of forecasts and applying this information to farm situations.
- Students will develop an understanding of legislation in place to ensure a farm is environmentally sustainable. In a practical setting, students will design and implement an audit to assess sustainable practices within the school environment and will monitor the implementation of recommendations.
- Students will also produce a Video, Blog or PowerPoint demonstrating the concepts involved in cleaning and inspecting machinery while meeting biosecurity requirements.

Observe and Report on Weather

1. What is the difference between weather and climate?

_____

_____

_____

_____

2. In Australia, who is the main organisation who monitor and report on weather?

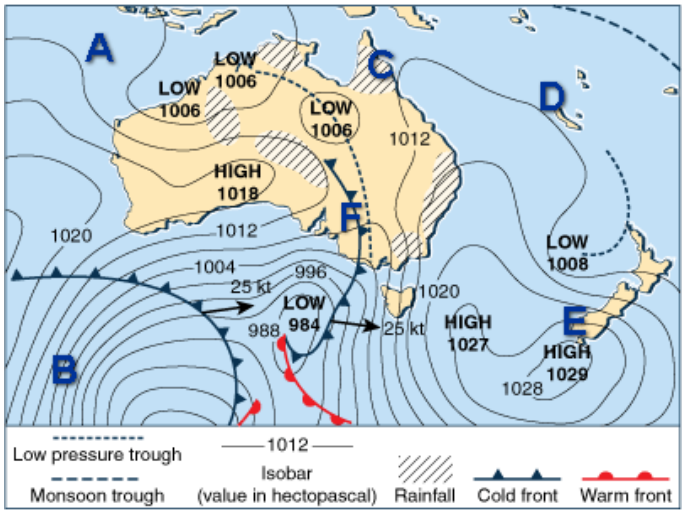
_____

_____

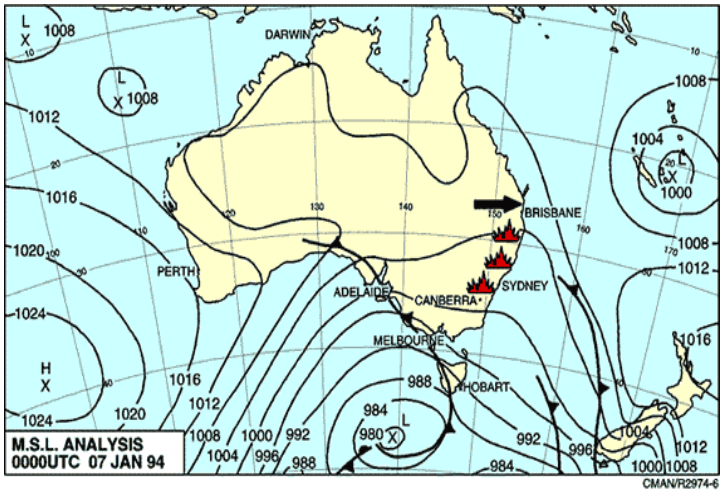
3. How do we measure weather? List **five** tools and equipment in the table provided below.

Weather Measuring Tool	What Does the Equipment Measure?	Unit of Measurement Used
1.		
2.		
3.		
4.		
5.		

4. Read the information provided through the website link below to interpret the weather maps provided. Locate the symbols on the maps and outline what they mean in the table below.
   Resource: http://about.metservice.com/our-company/learning-centre/how-to-read-weather-maps/



Weather Map 1



Weather Map 2

Term	Draw the Weather Symbol	Definition
Cold Front		
Warm Front		
Fire Warning		
Low Pressure System		
High Pressure System		
Rainfall		
Isobars		

5. State the impact the following weather events may have on livestock, crops and pasture and suggest a strategy to reduce this impact.

Forecast	Impact on Livestock, Crops and Pasture	Strategy to Reduce Level of Impact
Extreme Cold	Livestock:	
	Crops/Pasture:	
Extreme Heat	Livestock:	
	Crops/Pasture:	
Fire Warning	Livestock:	
	Crops/Pasture:	
Rainfall	Livestock:	
	Crops/Pasture:	
Wind Chill/Shear	Livestock:	
	Crops/Pasture:	
Flood warning	Livestock:	
	Crops/Pasture:	
Drought	Livestock:	
	Crops/Pasture:	

6. Outline the impact of the forecast on farm management practices and routine work schedules.

Forecast	Impact of forecast on farm management practices / routine work schedules
Cold Front (Cold Temperatures/ Extreme Cold)	
Warm Front (High Temperatures/ Extreme Heat)	*Change the scheduled muster as it will be too hot to move the animals; monitor the livestock; ensure workers are well hydrated.*

Fire Warning	
Low Pressure System	
High Pressure System	
Rainfall	
Wind Chill/Shear	
Flood warning	
Drought	

7. Define and explain a 'grazier's alert'.

A) Why is the combination of rain, wind and cold temperatures so significant?

B) Explain the importance of a grazier's alert to Primary Industries workers.

C) Outline the action a farmer would take if a grazier's alert was issued.

8. Discuss possible preventative farm management practices for the following extreme weather scenarios..

A) Scenario 1 – Livestock

The farmer has organised for the shearer to come and shear his mob of 50 wethers on Monday. He has 40 ewes with lambs from one to five weeks of age. The weather bureau is forecasting heavy rain on Sunday with a graziers alert for Saturday and Sunday. Outline the management practices the farmer should implement.

_____

_____

_____

_____

_____

B) Scenario 2 - Crop

The farmer is scheduled to start harvesting his wheat crop on Tuesday and Wednesday. The temperature is predicted to reach 45°C on Tuesday and be even hotter on Wednesday. There is also an extreme fire weather warning in place for both days. Outline changes to the day's scheduled activities that the farmer should make.

_____

_____

_____

_____

_____

C) Scenario 3 – heat and birthing

A farmer is in the middle of lambing season. 100 ewes have already birthed in the last two weeks and 100 ewes are due to birth in the next two weeks. A forecast of 40-45^{0}C is predicted every day for the next week. The forecast is 35-38^{0}C for the following week. State what effect these temperatures may have on the neonates and the pregnant, birthing and lactating ewes.

_____

_____

_____

Give some suggestions of actions the farmer can carry out to reduce the risk of heat stress on their flock.

_____

_____

_____

D) Scenario 4 – cold and metabolism

A farmer has a herd of 300 Poll Herefords, which includes 120 weanlings which are currently being fed on a mix of hay and grain. The daily average temperature for the farm is indicated in the table below.

Week	Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

1	**Temp (ºC)**	19	19	18	17	16	15	15
2	**Temp (ºC)**	15	14	13	14	13	13	12

Describe the effect the above conditions will have on the amount of hay and grain the weanlings are eating and explain why. In your answer, relate temperature to metabolism.

_____

_____

_____

_____

_____

E) Scenario 5 – prolonged dry periods

A farmer has a herd of 600 merinos. There are 400 weathers and 200 breeding stock. The farmer also crops barley on 2000ha of their farm. Over the last 4 years the average rainfall has dropped from 800mm to 200mm.

Describe the effects the farmer might observe on their property.

_____

_____

_____

9. Describe the steps the farmer can take to conserve their property resources during this dry period.

_____

_____

_____

10. For the following weather events, state the hazards they present to the worker and how a worker can reduce the risks.

Forecast	Hazard	Risk	Hazard Control	PPE
Extreme Cold				
Extreme Heat				
Fire				
Heavy Rainfall				

Cyclone/ Hurricane				
Flood				

11. A) If a change in weather or extreme weather is predicted, who should a worker inform?

_____

_____

_____

B) How should the worker inform the relevant persons?

_____

_____

_____

Student Feedback - Part A Written, Internet research	☐ **Satisfactory** ☐ **More Evidence Required**
Student competently answers questions about/ or demonstrate • The weather and forecasting the weather • Interpreting a map • Applies tools to collect weather information • Understands a weather forecast • Outlines the WH&S Strategies associated with weather conditions and associated farm practices. • Modifies management practices according to forecast	
Assessor Signature:	**Date:**

Part B: Written - Environmentally Sustainable Work Practices

- Answer all question and tables in the space provided
- Use the school farm to identifying environmental hazards pose a risk and complete the table. You may use the website listed to help with the answers
- Investigate and the present information in a brochure, poster, website or Blog about the local Environmental Officer job description and role.

1. Define sustainability as it relates to farms.

_____

_____

_____

2. State the importance of sustainability to Primary Industries.

_____

_____

_____

3. List some examples of environmentally sustainable work practices in Primary Industries.

_____

_____

_____

4. Reporting resource use is very important on farms. State why it is so important.

_____

_____

5. Explain how you would report inefficient resource use on a farm and who you would report it to.

_____

6. Outline the legislation and code of practice relating to environmentally sustainable practices on farms.

Name of Legislation or Code of Practice	Responsible authority	Legislation outline

7. Walk around your school farm. Complete the table by identifying how environmental hazards pose a risk to a worker or a person conducting a business or undertaking (PCBU) and proposing strategies to minimise this hazard. Consider workers/PCBU responsibilities, equipment required, disposal methods and the PPE needed. Use the following website to help you: https://www.pbslearningmedia.org/resource/envh10.sci.life.eco.hazardfarm/environmental-hazards-on-the-farm/#.Wp4VbJNuY00

Environmental resource hazard	Environmental resource risk	Risk to worker or PCBU	Strategies to minimise environmental hazard

8. Reporting environmental hazards and risks on farms is very important. State why it is so important.

_____

_____

9. Explain how you would report environmental hazards and risks on farms and who you would report it to.

_____

10. Find out the role of your local Environmental Officer and present your findings in any visual media form (flyer, brochure, poster, webpage, blog site etc). Either hand in separately or attach to the end of the task. Ensure that you include the following information:

a) Qualification requirements
b) Similar job titles
c) Duties and responsibilities Identified
d) Work Health and safety issues in the job role
e) Working environment
f) Career outlook (re: future employment prospects)
g) Equal Employment Opportunities

Student Feedback - Part B Written questions and research	☐ **Satisfactory** ☐ **More Evidence Required**
Student competently answers questions about: • Environmental sustainability • Legislation, its purpose and farmers responsibilities involved with environmental sustainability on farms and the relevant authorities • Completed the hazard identification on the school farm • Submitted the Brochure, poster, website or blog on the local Environmental Officer, and includes all information required	
Assessor Signature:	**Date:**

Part C: Written - Inspect and Clean Machinery for Plant, Animal and Soil Materials

- Part C requires you to answer the questions in the spaces provided using the Appendix A - Biosecurity resource
- Use the website link to complete the tractor safety checklist
- Complete the tables in the spaces provided

Using Appendix A - ***Biosecurity*** resource, answer the following questions below to demonstrate your understanding about the importance of Biosecurity in Australia.

1. a) What is Biosecurity?

_____

_____

b) State the importance of following biosecurity regulations.

_____

_____

_____

c) The following website has a biosecurity protocol checklist. **Go to the website** and **complete the checklist** based on the school farm **tractor**. Include the completed checklist as part of this assessment task.
http://www.farmbiosecurity.com.au/wp-content/uploads/2012/11/Farm-biosecurity-checklist-Cotton.pdf

2. What is the name of the act governing biosecurity in Australia? _____

_____

3. Name three biosecurity issues in your area?

1. _____
2. _____
3. _____

4. List **two** types of contaminates that can be found on machinery

Type of Contamination	Example

5. Outline the ways weeds, pests and soil borne diseases can be spread by machinery, humans, equipment and animals.

Machinery: _____

_____

_____

Humans: _____

_____

_____

Equipment: _____

_____

_____

Animals: _____

_____

_____

6. List **five** pieces/types of Personal Protective Equipment (PPE) and five pieces of equipment required to conduct an inspection on machinery for plant, animal and soil materials.

PPE Required	Equipment Required
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

7. State why is it important to know the operating features of a machine when cleaning it?

_____

_____

_____

8. There are many hazards when inspecting and cleaning machinery for contaminates. For each example below, identify the hazards and list safety precautions to minimise the risk.

Task	Hazards	Risk minimising strategies
Inspecting and cleaning tractor after the tractor was used to slash a grazing paddock.		
Inspecting and cleaning farm vehicle after using to haul cargo and passengers to do fence repairs.		
Inspecting and cleaning a post hole digger after being used to dig holes to construct a new fence.		
Other -		
Other -		

Task	Standard Operating Procedure (SOP)	Hazards	Risk minimising strategies
Inspecting and cleaning tractor after the tractor was used to slash a grazing paddock.			
Inspecting and cleaning farm vehicle after using to haul cargo and passengers to do fence repairs.			
Inspecting and cleaning a post hole digger after being used to dig holes to construct a new fence.			

9. What is the most important thing to do before inspecting a machine? _____

_____

_____

10. Explain how waste material should be disposed of.

_____

_____

_____

_____

_____

_____

11. Who should be notified of inspection results? _____

12. What should you do with suspicious plant or animal findings when inspecting machinery? _____

_____

_____

13. What should be done with PPE and clothing after inspecting and cleaning away potential contaminants?

_____

_____

_____

_____

Student Feedback - Part C Written and Internet Research	☐ **Satisfactory** ☐ **More Evidence Required**
Student competently answers questions about: • Machinery safety • Biosecurity • Contamination on a farm • WHS and PPE • Identifies equipment Completes the tractor safety checklist	
Assessor Signature:	**Date:**

Part D: Practical – Observe and Report on Weather

Part D requires you to collect local and regional weather data for 8 days and record the data on the table provided. Your teacher must sign these pages. Complete question 3.

1. Collect relevant weather data such as rainfall, temperature, humidity, wind speed and direction around the school farm using the weather measuring tools provided. (E.g. Minimum and maximum thermometer readings, rain gauge, wet and dry bulb, mini weather station.)

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
Rainfall								
Rain days								
Minimum Temp								
Maximum Temp								
Humidity								
Wind Speed								
Wind direction								
						Supervisors sign		Date

2. Collect the **regional** data for the same 8 days. State what action you took on the farm in response to the weather. **Region Name:** _____

	Day 1	Action taken	Day 2	Action taken	Day 3	Action taken	Day 4	Action taken
Rainfall								
Rain days								
Minimum Temp								
Maximum Temp								
Humidity								
Wind Speed								
Wind direction								
	Day 5	Action taken	Day 6	Action taken	Day 7	Action taken	Day 8	Action taken
Rainfall								
Rain days								
Minimum Temp								
Maximum Temp								
Humidity								
Wind Speed								
Wind direction								
						Supervisors sign	Date	

3. Compare the school data to the regional data and outline the differences. In the comparison, use the terms '**actual'** and '**forecast'** weather to assist with clarification.

_____

_____

_____

_____

_____

_____

_____

Student Feedback Part D – Practical Observation and recording data	☐ **Satisfactory** ☐ **More Evidence Required**
• Student observed and recorded Local weather • Student observed and recorded Regional weather • Demonstrates an understanding of appropriate actions for agriculture and farming during different weather conditions	
Assessor Signature:	**Date:**

Part E: Practical - Environmentally Sustainable Work Practices

Part E requires you to
- Identify resources on the school farm
- Purpose strategies to improve sustainability of these resources
- Investigate the current work procedures on the school farm and suggest improvements
- Complete the table on environmental hazards

1. Complete the table by identifying all the resources used on the school farm, stating their use, finding out how they are measured and then recording the usage of these resources over 4 weeks.

Resource	How is this resource used?	Where usage information is found	Usage week 1	Usage week 2	Usage week 3	Usage week 4	Total resource usage
E.g.							

2. From the table in question 4, identify where resources are not being used efficiently and then propose strategies to improve the efficiency. Work in pairs or small groups to complete this task.

Resource being used inefficiently	Strategy in the workplace or work practice which could improve sustainability and/or resource useage

3. Implement and monitor at least four of the recommendations made in the above question. Record the outcomes below.

Recommendation for improving	Action taken	Desired outcome (Measure of	Timescale	Evaluation of action / Actual result achieved

sustainability		success)		

4. Find out what workplace procedures are already in place on the school farm to reduce resource use. Include a list of these below. For each procedure, describe how you complied with the organisational plan.

Workplace procedure	How you followed this procedure	How this improves sustainability	Date	Teacher sign

5. Complete the table below by reporting at least five environmental hazards on the school farm.

Environmental hazard/risk	Reported to	Method of reporting	Date	Teacher sign

6. Complete the table below by reporting at least five breeches or potential breeches of workplace procedures related to sustainable practices on the school farm

Breech of workplace procedures related to sustainable practices	Reported to	Method of reporting	Date	Teacher sign

Student Feedback - Part E Direct Observation of practical work	☐ Satisfactory ☐ More Evidence Required
• Student identifies resources and sustainability of those resources on the school farm • Identifies potential environmental hazards on the school farm • Understands the reporting of hazards	
Assessor Signature:	**Date:**

Part F: Practical - Inspect and Clean Machinery for Plant, Animal and Soil Materials

Part F requires you to
- Use the website to assist you to complete the checklist on a piece of farm machinery
- Prepare a short video of yourself checking the machinery, using the self - check guide

1. Follow the checklist from http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0010/545554/procedure-decontamination-vehicles-and-equipment.pdf (see below) on what needs to be carried out during inspection of machinery in relation to plant, animal and soil materials. Complete this checklist on a piece of machinery on the school farm.

Site:_____ Date: _____

Vehicle/Equipment:_____ Decontaminated by:_____

Safety Check: □Flat ground □ Engine off & keys removed □ Wheels chocked □ Moving/raised parts secured

	Contamination point	Decon		Contamination point	Decon
Body	Step treads		Wheels & tyres	Wheel arches	
	Bumper/s			Wheel caps & rims	
	Around fuel tank caps			Tyre tread/tracks	
	Around tray body			Mudflaps	

Under carriage	Axels & differentials			Brakes	
	Struts & stabilisers		Interior / Cabin	Remove items for disposal/cleaning	
	Steering components			Foot wells	
	Chassis rails, inc recesses & holes			Seats	
	Spare tyre & mounts			Air vents	
	Fuel tank			Glove box, centre console	
Engine bay	Front grill			Tool boxes	
	Radiator, oil coolers			Boot or recesses, inc spare tyre well	
	Top of gearbox		Attachments	Bull bar	
	Battery recess & tray			Tow ball	
	Air filters			Winch	
	Engine mounts			Bucket, blade, boom, ripper etc.	
	Engine recesses or manifold			Hydraulic arms	

Reported to:_____ Date:_____ Signed:_____

2. Prepare a 3-4 minute video of yourself demonstrating inspecting/cleaning farm machinery. Include the following:

Criteria	**Self Check**	**Teacher Check**
Complete the checklist from http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0010/545554/procedure-decontamination-vehicles-and-equipment.pdf and submit it with your report.		
Name – At the start of the video identify yourself by stating your name and school.		
Select a piece of Agricultural or Horticultural equipment and explain the agricultural enterprise in which it is being used.		
Explain the types of contamination you would expect to find on the equipment and the impacts this contamination could have on the enterprise and whole farm		
Explain the PPE required for the decontamination task		
Describe how the equipment will be secured to ensure safety while completing the task		
Explain the process for decontamination		
Show yourself completing some of the job *e.g. include things like removing guards and other difficult areas of the machine*		
Collect a sample of the contaminated material in a plastic bag and explain how it will be disposed.		

Student Feedback - Part F Direct observation of practical work and self assessment	☐ **Satisfactory** ☐ **More Evidence Required**
• Student completed the checklist for the machinery • Student competently demonstrated cleaning and inspecting a piece of machinery in their video	
Assessor Signature:	**Date:**

Additional Requirements:

Describe here how the task was modified for special needs and/or EAL/D e.g.

- Altering/simplifying the language used_____
- Providing support staff
  _____
- Providing tutorial sessions
  _____
- Providing additional time to complete the task
  _____
- Altering assessment methods used
  _____
  Please note, when altering an assessment method such as use of verbal questioning instead of written response teacher must indicate alteration on the task (e.g. **V** written next to question)

STUDENT ACKNOWLEDGEMENT (To be completed before student is assessed)

- I understand the requirements of the assessment task and assessment methods.
- I understand what is being assessed and can perform the tasks described in this assessment.
- I have been provided with information about RPL, Credit Transfer and Assessment Appeals.
- I have notified the assessor of any special needs to be considered during this assessment.
- I declare that the work submitted is my own and has not been copied from another person or source

Student's Signature: ……Name …… Date: .....

ASSESSOR FEEDBACK TO STUDENTS:

Student Name: _____

Assessor's Name: _____Final Assessment Date: _____

List below if supplementary evidence was required to determine competence: e.g. verbal questioning; third party evidence (e.g. work placement employer report, photographs), school events, videos etc. and upload to QMS	
Unit of Competency	Evidence description
AHCWRK201 Observe and report on weather	
AHCWRK209 Participate in environmentally sustainable work practices	
AHCBIO201 Inspect and clean machinery for plant, animal and soil materials	

Assessment Outcome:

AHCWRK201 Observe and report on weather	☐ Competent	☐ Not yet competent
AHCWRK209 Participate in environmentally sustainable work practices	☐ Competent	☐ Not yet competent
AHCBIO201 Inspect and clean machinery for plant, animal and soil materials	☐ Competent	☐ Not yet competent

If you have been deemed NOT YET COMPETENT this is the Further Action Required: In order for you to be deemed competent for these units, you must:

Unit of Competency	Action required if More Evidence is Required	Date of Reassessment/ Date Competent
AHCWRK201 Observe and report on weather		
AHCWRK209 Participate in environmentally sustainable work practices		
AHCBIO201 Inspect and clean machinery for plant, animal and soil materials		

Teacher's general comment

……

.....

I declare that I have conducted a fair, valid, reliable and flexible assessment with this student and I have provided appropriate feedback Teacher's Signature..... Date: .....

Student Feedback - Please provide feedback to your teacher regarding this assessment task

	Yes	No	A bit	Unsure
Did the class work and activities help you to complete this competency task?				
Were the instructions in this task clear?				
Did this task help you to gain a better understanding of the unit of competency being studied and assessed?				
Did you find the task challenging? If yes, why?				
Could this task be improved? If yes, how?				

If you do not agree with the assessment outcome, please ask your teacher about the appeals process.
Student's Signature: ……..……..... Date:

Teachers: The completed student assessment task and the Evidence and Answer guide must be securely retained on QMS for six months after the completion of the course. Also retain any other evidence that demonstrated how the student was deemed competent e.g. written tasks, photographs, videos.

Biosecurity Appendix A

BIO (Living things) + **SECURITY** (To protect and keep safe) = **BIOSECURITY**

What is Biosecurity?

Biosecurity
Noun
Procedures or measures designed to protect the population against harmful biological or biochemical substances.

National Biosecurity
Biosecurity has played a critical role in reducing risk and shaping our nation to become one of the few countries to remain free from the world's most severe pests and diseases.

With more than 60 000 kilometres of coastline offering a variety of pathways for exotic pests and diseases, the Department of Agriculture and Water Resources screens, inspects and clears the millions of people, mail parcels, baggage, ships, animals, plants and cargo containers entering Australia every year using x–ray machines, surveillance, and, of course, the instantly recognisable detector dogs.

Australia works across the whole biosecurity continuum with offshore, at the border and onshore measures. The department uses a range of sophisticated technologies and approaches including, research, shared international resources and intelligence, to help prevent the introduction and spread of disease

Today, biosecurity controls at Australia's borders minimise the risk of exotic pests and diseases entering Australia and protect our $32 billion agriculture export industries as well as our unique environment, native flora and fauna, our tourism industries and lifestyle.

What's the big deal?

When Johnny Depp brought his Yorkshire Terriers, Pistol and Boo, into Australia, he was potentially also bringing in:

- **Rabies**
- **Surra**
- **Hendra Virus**

Which could have cost the Australian economy *billions* of dollars!

http://www.agriculture.gov.au/biosecurity/australia

Major biological threats to Australian Agriculture and Environment:

PLANT

- Parthenium Weed
- Prickly Pear
- Coolatai Grass
- Lantana
- Prickly Acacia

ANIMAL

- Russian Wheat Aphid
- Exotic Bees*
- Cane Toads
- Feral Pigs
- Rabbits
- Bats

DISEASE

- Johnes Disease
- Hendra Virus
- Foot and mouth disease*
- Bovine spongiform encephalopathy (BSE)*

- *(* denotes threat is not currently in Australia)*

Domestic Biosecurity

While we continue to endeavor to keep our borders secure, some biosecurity issues have managed to slip through the cracks, either by mistake (such as the Russian Wheat Aphid entering Australia), or from previous decisions made when biosecurity wasn't such a big issue (such as Cane Toads and Rabbits). Biosecurity in Australia is governed by The Biosecurity Act 2015, which has replaced the *Quarantine Act 1908.*
The Biosecurity Act:

- provides a modern regulatory framework
- reduces duplication and regulatory impacts
- allows for current and future trading environments
- allows for collaboration across government and industry

As we already have biosecurity issues present in Australia, it is now everyone's responsibility to limit the spread of exotic and introduced plants, diseases and animals. Each state places a different level of importance upon the transfer of plants, animals and diseases, so it is important to check the requirements when travelling interstate. Particular attention needs to be paid to farm machinery, which often carry seed and plant material after being operated off road.

Cleaning plant and machinery

The main biosecurity concern posed by plant and machinery is the spread of weeds. It is estimated that weed control costs farmers $1.5 billion a year, and a further $2.5 billion in lost production per year. When moving machinery between farms, it is very important not to introduce weeds into different areas. This is achieved by following procedures to remove any contaminants from vehicles and machinery before leaving or entering a location.

Biosecurity threats that may be carried by machines are:

Animals- such as insects, mice, snakes, including animal waste
Plant material, such as seeds and diseased vegetation
Soil borne diseases, such as plant pathogens

Due to the large size of machinery and the way in which they operate, it is easy for these threats to go undetected. When cleaning machines it is often useful to understand how they work.
For example, combine harvesters are a very complex machine with a lot of moving parts and guards which are perfect for storing unwanted plant material. It is important to know how to locate and remove guards to ensure thorough cleaning.

Equipment used for inspecting and cleaning machinery

When cleaning machines it is important to keep safe. Personal Protection Equipment you may use include:

- Gloves
- Boots
- Eye protection
- Hearing protection
- Long pants and sleeves, or overalls
- Dust mask

Tools and equipment you may use for inspecting and cleaning machinery includes:

- Pressure washer
- Air compressor
- Spanners, screw drivers, hammers

- Brushes
- Vacuum cleaner
- Leaf blower
- Scraper
- Ladder
- Mirror, camera, lights

Before you start

Preparation is key when it comes to inspecting and cleaning machinery:

1. Choose the site where you are going to clean the machine. The ideal site would feature :
    - A clear, level area
    - An area which does not favour plant growth, or is easily observed for any unwanted plant growth
    - Some form of bunding to catch any water runoff, which may be carrying contaminants
    - Away from watercourses
    - Identify what you will do with any waste material

2. Once you have chosen your work site, you will need to prepare your tools and equipment. Make sure you consider the following:
    - Do you have access to electricity?
    - Do you need an air compressor?
    - Do you have water available?
    - What PPE do you need?
    - Will you need a ladder to access high machinery?

3. One of the most important things you must do before working on any machine is to make sure it has been secured! You must:
    - Turn off machine
    - Engage handbrake
    - Chock wheels
    - Pin any moving parts
    - Use chocks to stabilize hydraulic cylinders, or lower attachments and implements

Cleaning machines

Below is a generic checklist of areas of a machine that you may want to consider during your inspection and cleaning process. The cleaning process may not always need to be as thorough as specified in this list, however it may be a reminder of areas to clean which you may have otherwise overlooked.

Area	Actions *Source :Department of Agriculture, Fisheries and Forestry*	✓
Air tanks	Clean these as for fuel tanks.	
Air vents	Unscrew the air vents and blow them with compressed air. If filters are fitted, remove and clean	
Battery	Remove the battery and clean underneath it.	
Battery box	Clean the battery box	
Bodywork	Check all damaged bodywork. Remove any floor or body strips or moulds that form lips where soil and plant material may become trapped, particularly on vehicle floor compartments.	
Bumper and brush guard	Clean all hollow sections and attachment points.	
Canopy	Remove the canopy and brush it, then clean it with compressed air or high-pressure water.	
Canopy bows	Disassemble the canopy bows, then wipe or scrub them with brushes and water. Pay particular attention to locking catches, joints and hollow cross members	
Chassis	Clean the chassis with high-pressure water using equipment with a flexible nozzle. Pay particular attention to small apertures, which may act as reservoirs for soil and plant material.	
Dashboard	Use compressed air and dry paintbrushes to clean the dashboard.	
Dual wheels	Take extra care cleaning vehicles fitted with dual bogie wheels. If contamination is detected, an inspector may ask for the outer wheel to be removed, cleaned and reinspected.	
Fender wells	Clean the access areas for tail-light wiring and other fender apertures that may collect soil and plant material	
Floor drain plugs	Remove all floor drain plugs to facilitate cleaning. Clean all drain plugs and apertures, paying particular attention to threaded areas.	
Floor mats	Remove all floor mats or carpets and clean them.	
Fuel tanks	If fuel tanks are strapped to the vehicle, clean them to remove contamination between the tank and the vehicle.	
Insulation tape	Check all taped areas for contamination and replace the tape with new where necessary.	
Interior	Remove all contamination with vacuum or compressed air equipment.	
Internal panels,access panels	Where possible, remove all internal panels to allow cleaning of inner compartments.	
Lights and reflectors	Remove all damaged lights (internal and external) and any lights where seals have not maintained their integrity, so that you can clean the light fittings.	
Metal racks	Clean all box and tubular steel racks (which have openings) with high-pressure water.	
Radiator (all types)	Clean the radiator with compressed air and follow with a low-pressure high-volume water wash. Use brushes to pick seed material from between the veins on the radiator.	
Ropes, straps and velcro	Check and clean all ropes and straps and items containing velcro. Extend ropes and straps to their full length when cleaning and check all attachment points, fixtures and tension devices.	
Rubber seals	Check all rubber seals on windscreens, doors, tailgates and other areas and clean or replace them as necessary.	
Seatbelts	Clean and check all seatbelts, especially the catches where the seatbelts fasten. You may need to remove any sheaths or covers to adequately clean seatbelts.	
Seat cushions	Clean the cushions.	
Storage and tool compartments	Empty and clean all storage and tool compartments.	
Support and cross members	Check and clean the transmission support members and other cross members.	
Tools and equipment	Remove all items for cleaning. This may include jacks, wheel braces etc. Wipe tools clean.	
Toolboxes	Empty and clean all toolboxes. If they are bolted to the floor tray, unfasten and remove them to check there is no debris trapped between the floor and the toolboxes.	
Tyres	Clean the tyres, paying particular attention to the tread and any cuts or gashes.	
Winch cable drum	Unwind the winch cable and clean the drum, cable and any attachments of any soil and plant material that is embedded in the components or grease.	

Finishing up

Record Keeping

It is important to keep records of when and where you have cleaned machinery. This information comes in handy if there is ever a weed outbreak and the source needs to be identified. If you are cleaning a machine and find something suspicious it is important to record what you find and report that finding to you supervisor. This may be something like a bug, seed or piece of plant you have never seen before. If you cannot work out what it is, you may want to contact you nearest Local Land Service office.

Disposing of waste

Correct disposal of waste material is the final step towards limiting the spread of plants, pests and diseases. Ideally you would clean your machine before leaving the site of contamination, meaning you would be posing no further threat to the surrounding environment. Any waste you may produce should be disposed of according to the level of threat it may pose if accidentally released (eg, plant material from Parthenium Weed would be treated more seriously than that of Barley Grass.