



Farming a Sustainable Future

STUDENT WORKBOOK

YEAR 7-10

This resource has been developed by:



Contents

Student Worksheet: Build a Kinetikit	3
Student Worksheet: Questions	8

NB: Please double click throughout document on underlined text to go directly to website link and/or page.

PIEFA's Storm and Flood Industry Recovery Program (SFIRP) is jointly funded by the Australian and NSW Governments under the Disaster Recovery Funding Arrangements. Although funding for this product has been provided by both Australian and NSW Governments, the material contained herein does not necessarily represent the views of either Government.

SURVEY LINKS TEACHERS, CAREER ADVISORS AND STUDENTS

- Select the teachers and career advisors [weblink](#) to complete the survey or use the QR link.
- Select the students [weblink](#) to complete the survey or use the QR link.



Your response to the survey questions will be used to continuously improve PIEFA's food and fibre education resources. Your contributions to this endeavour are greatly appreciated.

WORKSHEET 1

Farming a Sustainable Future

Producers are working to create sustainable farms that protect the biotic and abiotic factors of the environment to ensure productive and profitable yields from the farm for long term environmental health and economic prosperity.

Please note: The first section include assembly instructions for the Kinetikit.

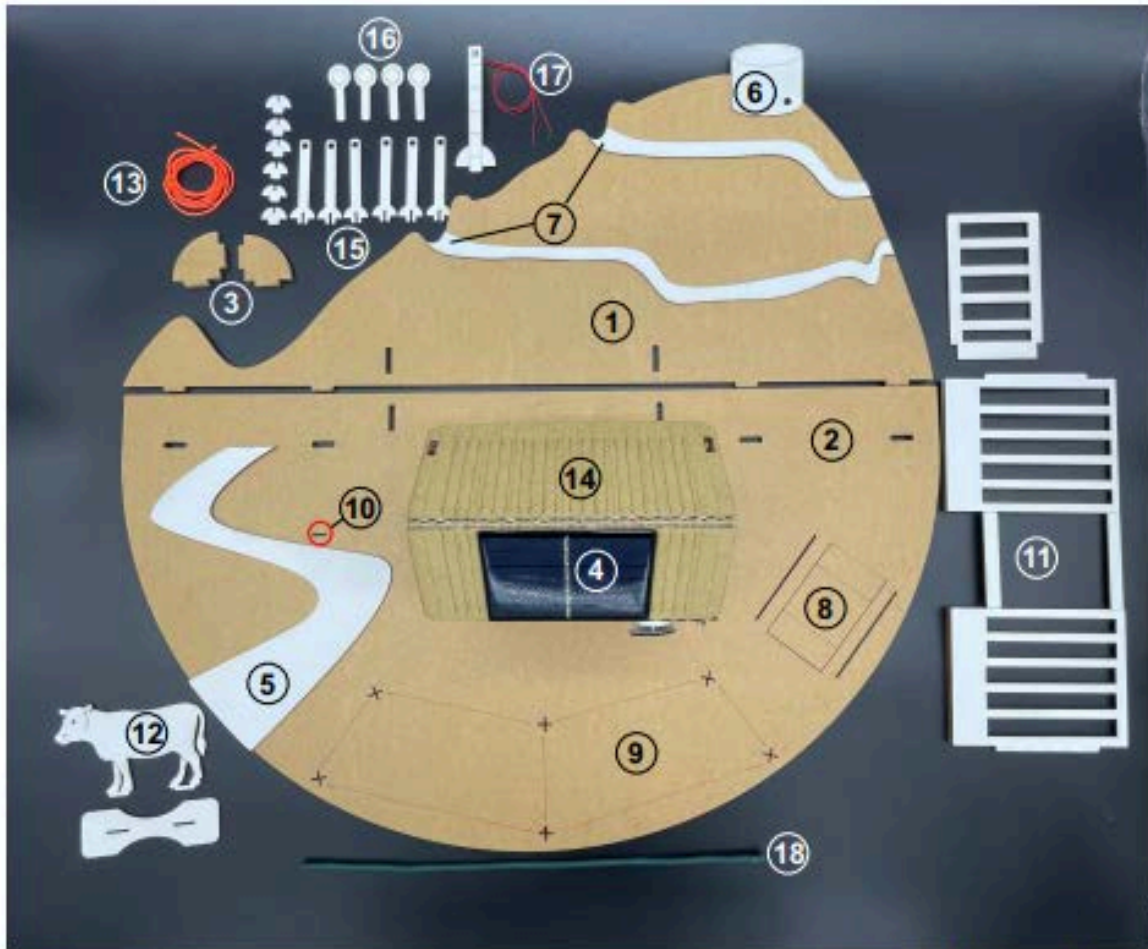
1. Construct your own Sustainable Farm KinetiKit by following the assembly instructions. Your final product should look like the image below.



WORKSHEET 1

Farming a Sustainable Future

STEP 1 Begin to construct your own Sustainable Farm KinetiKit by setting out all the parts provided. Below is an image of the parts for assembly.



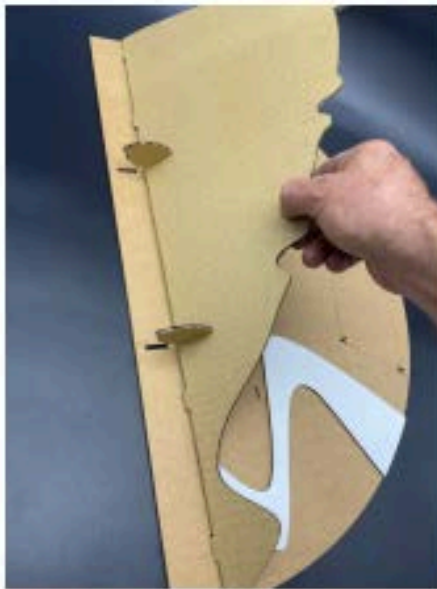
- 1. Hillside backdrop
- 2. Base
- 3. Backdrop supports
- 4. Solar Panel
- 5. Creek
- 6. Water tank
- 7. Swales
- 8. Walk over weigh Station base
- 9. Cell Grazing
- 10. Creek level Monitor slot
- 11. WOW Station assembly
- 12. Farm animal
- 13. Electric fence wire
- 14. Farm House
- 15. 6x fence post and base
- 16. 4 x Soil Probes
- 17. Creek Level Monitor
- 18. Water pipe
- 19. Electric Water Pump
- 20. 3v Solar output

Product disclaimer. KinetiKits accepts no responsibility for any accidental injury incurred during assembly and while using KinetiKits products.

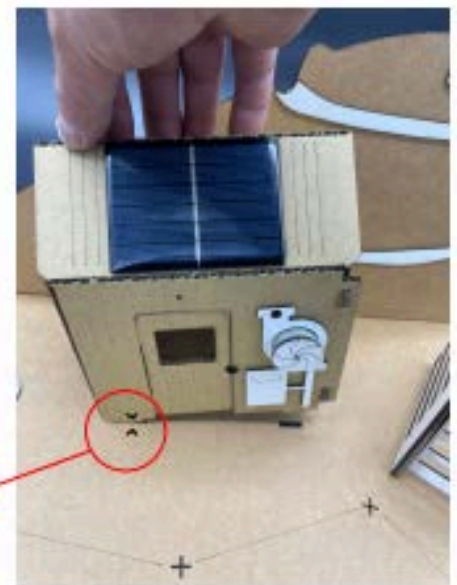
WORKSHEET 1

Farming a Sustainable Future

STEP 2 Assemble the KinetiKit with reference to the images below.



Using parts 1, 2 and 3, slot backdrop supports into Hillside, then fit hillside to base.

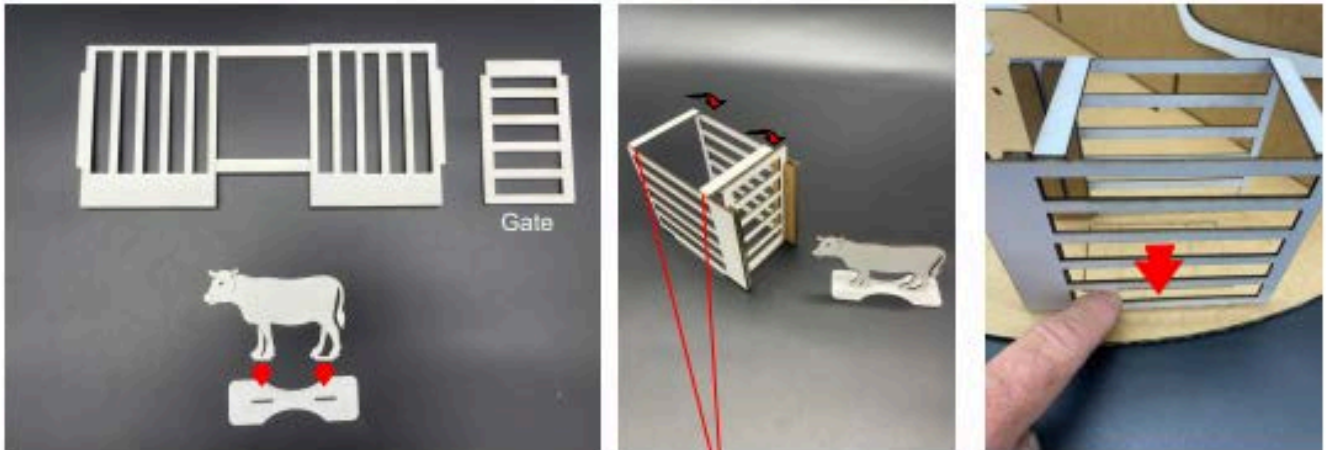


Gently fold Farm House along score lines and push together as indicated. Then place into position aligning the assembly arrows.

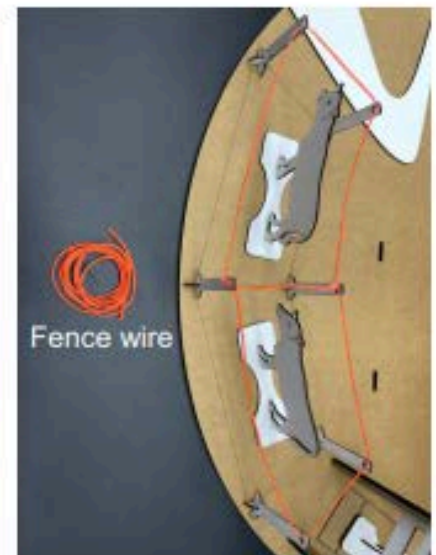
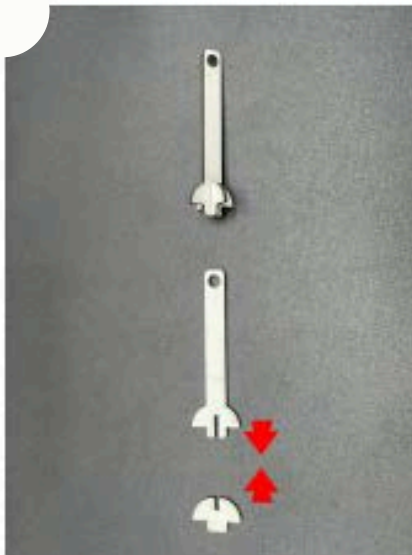
WORKSHEET 1

Farming a Sustainable Future

STEP 3 Assemble the KinetiKit with reference to the images below.



Next, fit the Farm Animal into its base. Fold at score lines and assemble the Walk over weigh Station. Slot it into the base applying gentle pressure as indicated. Slide Gate into top of station.



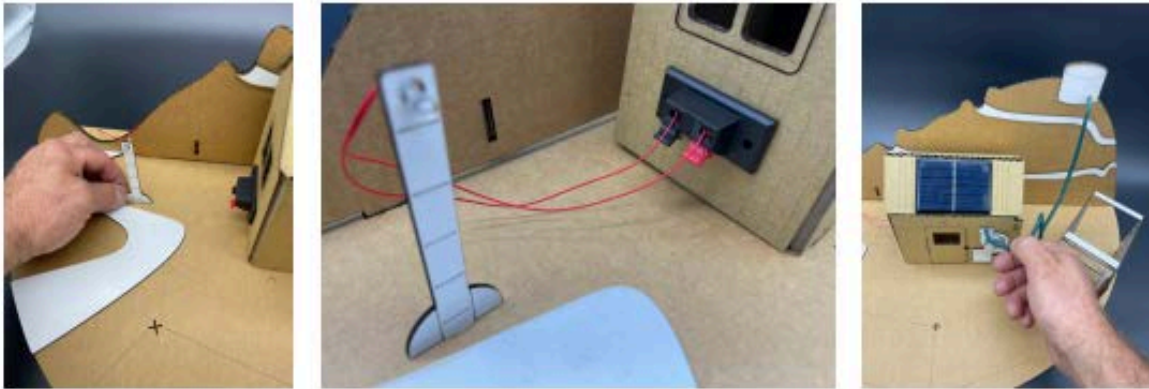
Assemble the 6 fence posts and fit them into the cross shaped slots. Next, thread the electric fence wire through fence posts, forming 2 grazing cells.

Product disclaimer. KinetiKits accepts no responsibility for any accidental injury incurred during assembly and while using KinetiKits products.

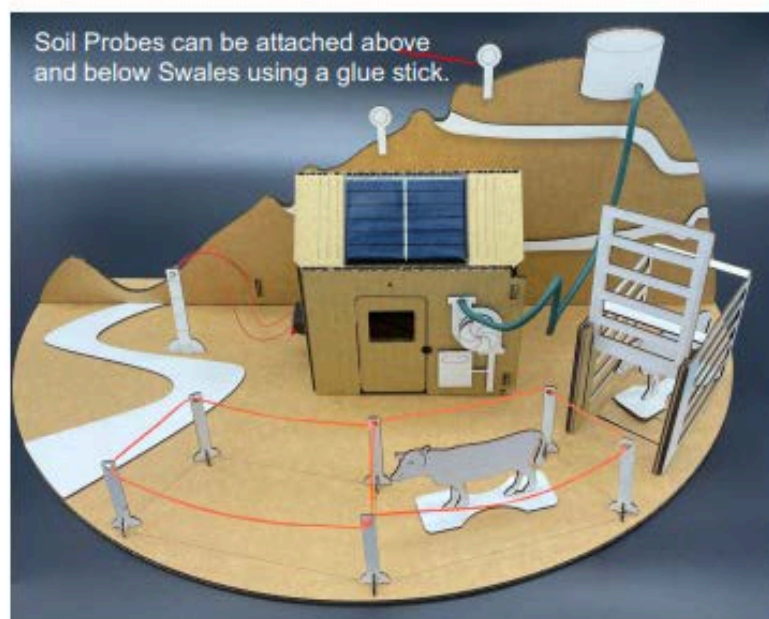
WORKSHEET 1

Farming a Sustainable Future

STEP 4 Assemble the KinetiKit with reference to the images below.



Fit the Creek Level Monitor into slot (10) then connect the wires to the 3v Solar output. Finally, connect the water pipe (18) to the Water Pump (19) and Water tank (6)



Your complete Farm Model

When model is placed in full sunlight, Water pump spins and Creek level Monitor lights up.
(Model will also operate under a 75 Watt heat lamp)

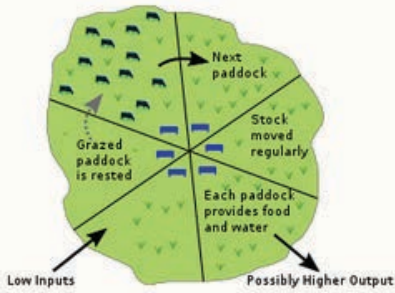
Product disclaimer. KinetiKits accepts no responsibility for any accidental injury incurred during assembly and while using KinetiKits products.

Now that you have built your Sustainable Farm Model, let's investigate the benefits of different farm practices and WHY farm management techniques are constantly evolving to mitigate the adverse effects caused by climate change. You will need a digital device to conduct research to respond to the following questions (smartphone/laptop - check with your teacher).

WORKSHEET 1

Farming a Sustainable Future

2. Research and describe the following grazing methods: set stocking, rotational grazing and cell grazing. Identify and explain one other method of providing feed for livestock on a farm. Support your research by accessing the [Grazing Strategies](#) and [Rotational Grazing](#) websites and observing the image below.



- What are the factors to consider when deciding in the best type of grazing?

- How can a farmer use a soil probe indicator to inform decision making with respect to rotational grazing? Investigate how knowledge of available pasture and pasture growth rates can help this process. Please read the information and investigate how knowledge of available pasture and pasture growth rates can help this process. Please see information at [Moisture storage vital for reliable pasture establishment during a dry year](#) website to help in your response to this question.

WORKSHEET 1

Farming a Sustainable Future

3. Why do farmers need to adjust stocking rates to counter seasonal (weather) conditions? In your response, access the **Tactical Grazing Management** and the **MLA Stocking Rate Calculator** websites.



4. Observe the images above showing tillage and describe what zero tillage is and the advantages of this farming technique. How can pasture improvement with a no seed till air seeder of planting diverse pasture species (such as chicory) help to achieve a sustainable outcome for the farm? Please access **How cultivation affects soil (nsw.gov.au)** to help with your response.

- Which section on the Sustainable Farm KinetiKit do you think represents zero tillage?

WORKSHEET 1

Farming a Sustainable Future



5. The images above include swales, an air seeder and fertiliser. What are the benefits of slowing water across the surface as a management technique on a farm? Write a brief summary and draw a diagram as part of your response, and research what Natural Sequence Farming is by accessing the website **Natural Sequence Farming (nsfarming.com)** to help summarise your understanding.

WORKSHEET 1

Farming a Sustainable Future

6. Match the numbered label to the images showing sustainable practices at Banyula Farm. Where can you identify these practices on your Sustainable Farm Model?

1. Creek side erosion and replanting

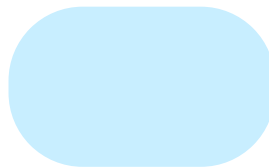
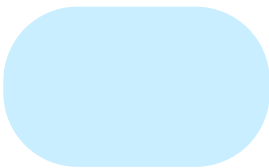
2. Native food cropping suited to the local environment

3. Dripline irrigation

4. Riparian revegetation

5. Waterway hardening and improvement

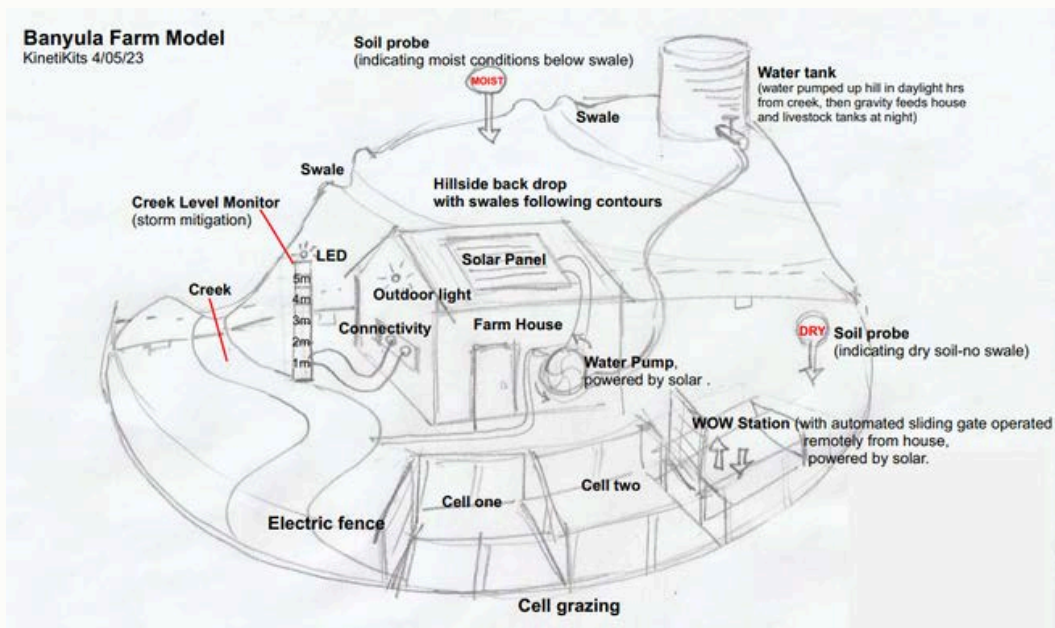
6. Runoff and harvest



WORKSHEET 1

Farming a Sustainable Future

The following schematic describes the Banyula Sustainable Farm Model and shows the different elements on the farm, including practices that are undertaken to ensure productivity and sustainability of the enterprise into the future.



7. Watch the video **Climate Smart Agriculture in Action** (3.36m). Why is it important for farmers to implement sustainable farm management practices? How will this help ensure a prosperous future for our agricultural industry? In your response, observe the schematic image above; what sustainable initiatives can you see?
