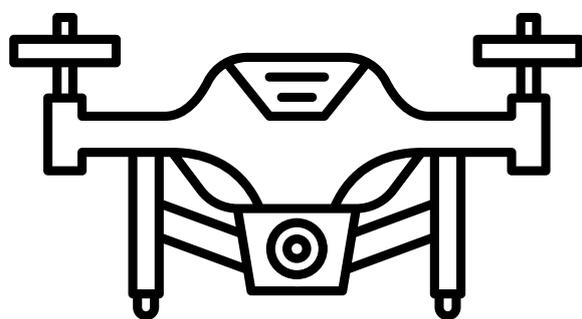
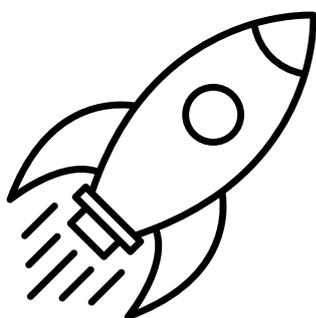
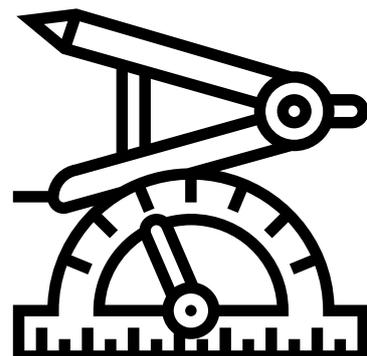
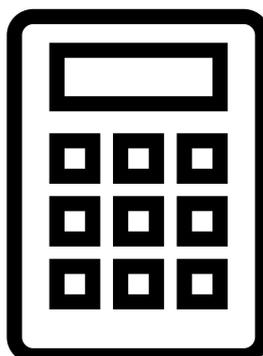
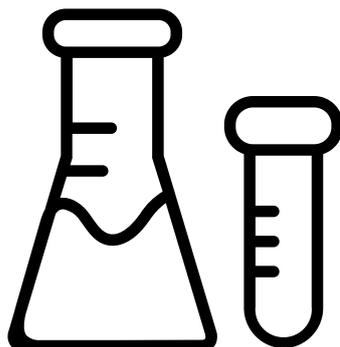


# Finding the ME in STEM



## Thomas' student activity pack

# Imagining the Future

Let us take you on an incredible journey into the world of space exploration with the Callistan Cycle.

The Callistan Cycle is a series of five short stories from our Imagining the Future series that explore STEM areas like robotics, AI, climate change and resource management.

You can read, watch or listen to each story, for free.



## **Far Out!** by Lili Wilkinson

As the seconds count down to the launch of humanity's first family into deep space, young stargazer Stella is sure that today is going to be the most exciting day of her life. But she has no idea of just HOW exciting and terrifying and important it will be. And what it will mean for the future of interstellar travel.

Join the Kaufmanns as they go FAR OUT! in a story that explores space and robotics.



SCAN ME



## **Calculating Apple Pie** by Melissa Keil

Kal and her sister Arche are hurtling through space towards Callisto in a ship shaped like a beluga whale that is the size of a city block. Arche does something a bit (very!) reckless to try to help her sister feel a little less homesick.

Calculating Apple Pie explores future food production and coding and how tampering with it can cause serious real-world problems.



SCAN ME



## **Semper** by Rebecca Lim

Shang travelled to Callisto on the Hohmann transfer from Earth, which took almost six years. She sacrificed everything for the chance to explore distant moons for resources and critical minerals, but gets paired with a Drobo called Semper that always wants to play, like a real dog. Shang doesn't have time for games, so why has she been paired with such a useless Drobo?

Semper explores robotics, AI and mineral exploration.



SCAN ME



## **Proof** by Gary Lonesborough

Tanner has been noticing that lots of people in his town on the lunar outpost on Callisto are getting sick. What is causing this mysterious illness plaguing his community? Tanner's sister Rachel thinks she knows what's causing it and takes Tanner on an eye-opening adventure where they discover a lot more than just the cause of the illness.

Proof explores filtration, waste management and environmental science.



SCAN ME



## **Earthbound** by Alison Evans

Pen and their father have arrived on Earth. Pen's comms device isn't working, and when Pen tries to fix it, they hear a strange rhythmic sound coming from it. Determined to figure it out, Pen seeks the help of an android to help decipher the mysterious sound.

Earthbound explores transportation and telecommunication.



SCAN ME

# Agronomist/ Molecular Geneticist

Student name: \_\_\_\_\_

## Comprehension Questions

Find the answers to these questions at <https://www.unsw.edu.au/future-you/pathfinders/thomas-cobbinah>

**Name two things Thomas is good at.**

1.

2.

**What does Thomas find to make sure we have enough food in the future?**

**Name two things Thomas isn't good at.**

1.

2.

**How many countries did Thomas study in?**

**What does Thomas use to make sure the world has enough food?**

**What is Thomas trying to figure out the best way to do?**

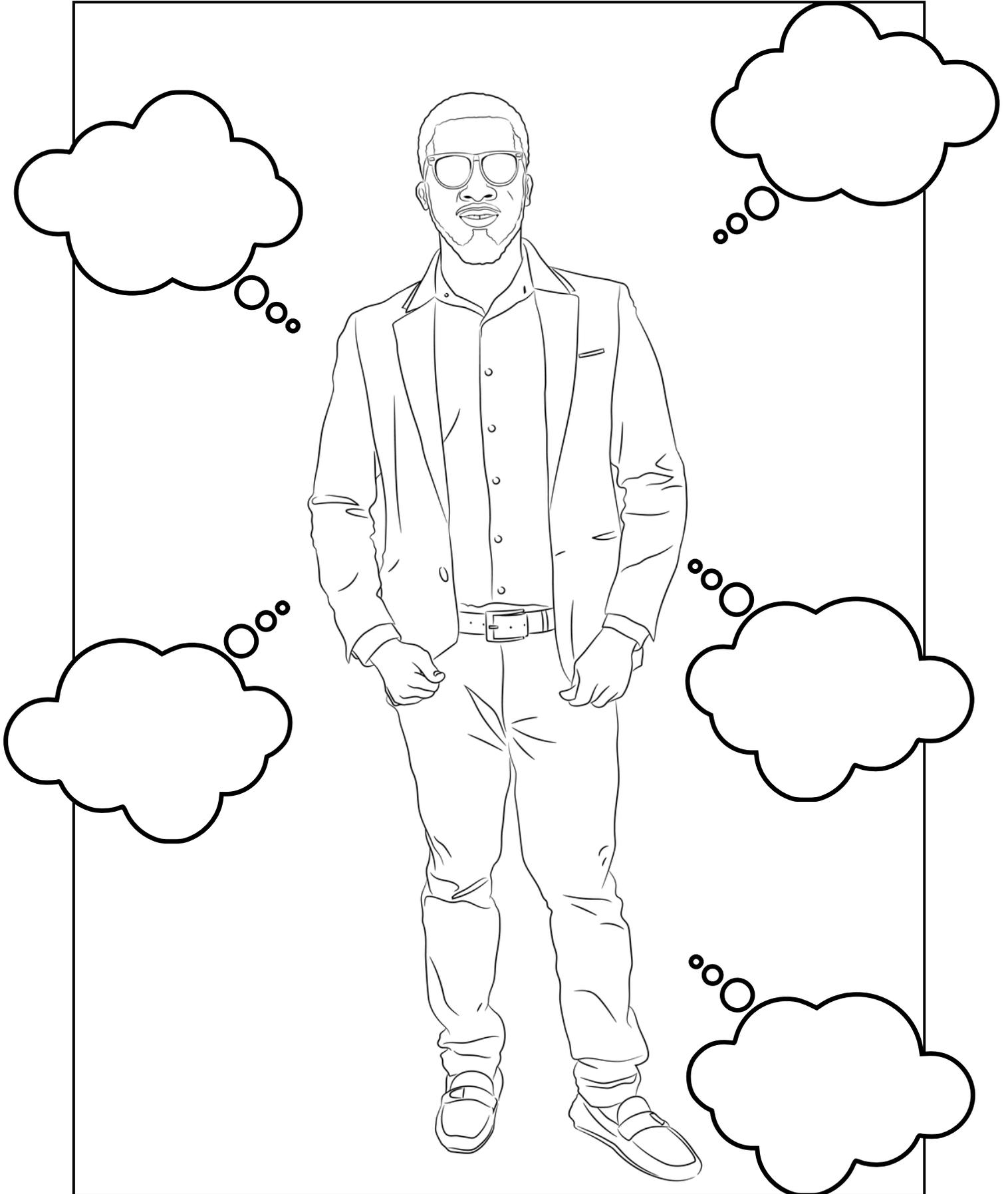
**How does Thomas solve puzzles about crops?**

**What makes Thomas feel close to nature?**

**What is Thomas' dream?**

**What makes Thomas happy outside of work?**

Meet Thomas. He's an agronomist/molecular geneticist who is working out how we can grow plants in space. Fill in the bubbles with 5 STEM (Science, Technology, Engineering and Mathematics) skills he uses in his job. Which of these skills do you think is most important? Which do you think would be the hardest to develop? When you've thought of the skills, colour in the rest of the image.



# Pathfinder Workwords

## Agronomist/Molecular Geneticist

H S O L T F G N R R P K L F B W U J H J R G Z E S T  
W C K D J G E F N L J V U D P D X L D N N S P G U E  
L I R V R S J R A H G U F H N Y B F K I T O M T S A  
Q E U A T C S N U X Q E P F Z I D M K Z C R R F T C  
X N T O E B T L X T X Z L Y R I K R G S Q A X D A H  
H T C H T S A E C A P S E I S I O K O L V F K O I E  
E I K L I S E C O C V I H C F W E R R E E Y K X N R  
Q S Z D E L U R V M S T O P D K C N L Z B T J U A H  
N T R I C H O M E S E V P R N I R L D T O I P W B N  
S U O I R U C I E M E D A Y M J E S L L G R J V I O  
N C I S Z M T Q K R B H I Q T R R S B F Y U X A L G  
O F L D P I Z R Y K D J I C N D N P X Z K C L N I J  
A D V E N T U R O U S O P I I Y T O P J S E L X T N  
E T A N O I S S A P B L O U L N D R U A F S G J Y A  
B Y H Q K L M E K A R E F F A W E C H X D R K E T X  
E D X J Q A V M G I Z F D G L C I S C H F S J J T H

### Find 20 words connected to Thomas.

1. ADVENTUROUS
2. CROPS
3. CURIOUS
4. DISCOVERY
5. FOOD
6. FRIENDLY
7. HARDWORKING
8. HELPFUL
9. KIND
10. MEDICINES
11. MICROSCOPE
12. PASSIONATE
13. PLANTS
14. RESEARCH
15. SCIENTIST
16. SECURITY
17. SPACE
18. SUSTAINABILITY
19. TEACHER
20. TRAVELLER

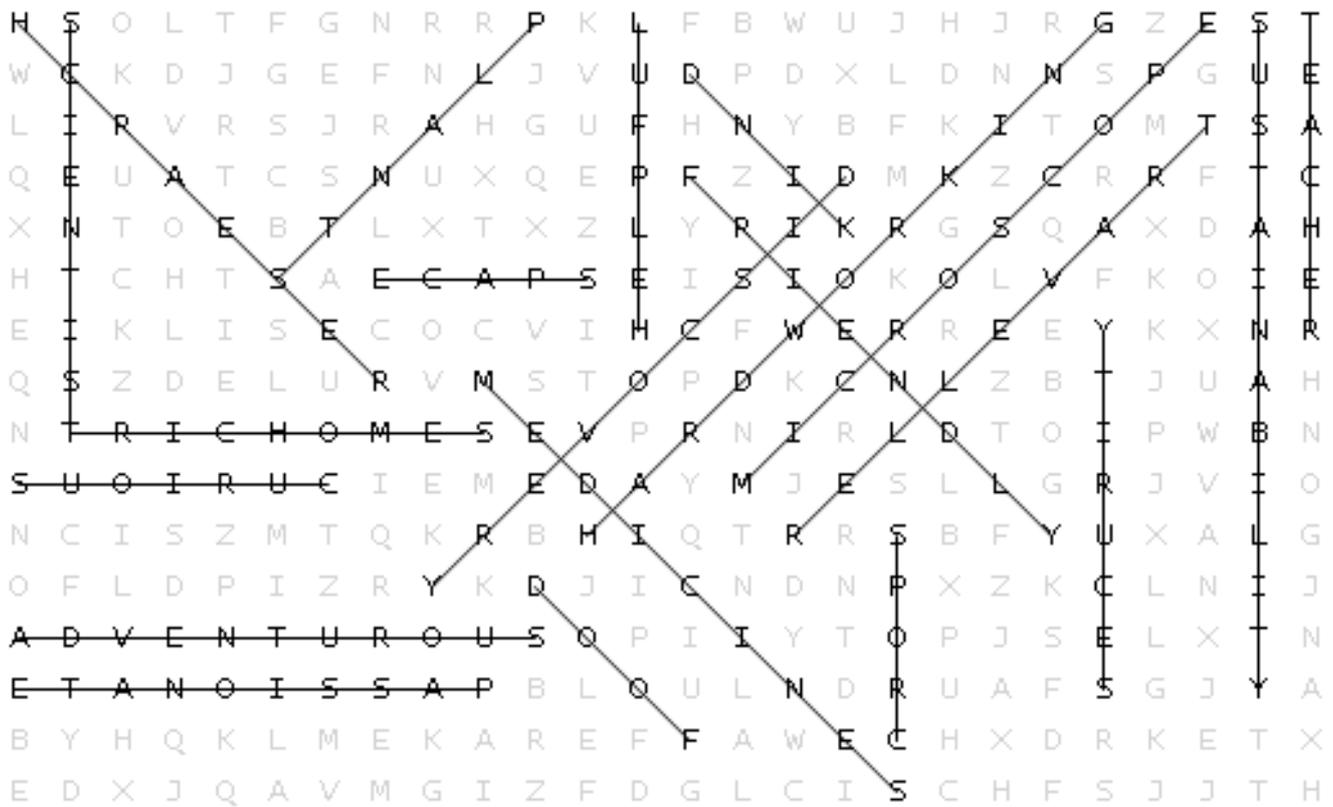
Bonus Word: TRICHOMES (tiny plant hairs!)

Scan this QR code to find out more about Thomas



# Pathfinder Workwords

## Answers



### Let's reflect

Were any of these words new to you? Look them up and find out what they mean.

Which of these skills do you think you are best at, or would like to get better at?

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Can you think of anything else Thomas might need to do his job?

\_\_\_\_\_

## An example of a day in the life of an agronomist/molecular geneticist

- 4.00am** It's a super early start for me today, but I don't mind. I'm hitting the road to visit some of the farmers I work with to collect samples to check how the latest crops are going.
- 6.00am** I arrive at the farm, but the farmer has already been up and working for hours! I'm just in time to hitch a ride on the tractor to gather some samples of the crops I've been doing some cutting-edge research into. The farmer and I have made some changes to how these crops are grown, and I'm hoping that the samples I collect today will show that the changes are working.
- 9.15am** I've got all my samples, and it looks like things are going well. I won't know for sure until I get back to my lab, so I hit the road again and head into my other workplace. During the drive, I listen to audio recordings of what other people are doing in this space to create more sustainable food solutions. I love hearing all the innovation and passion. It keeps me inspired and focused during these long hours on the road.
- Midday** I'm back, just in time to join the team for lunch. We meet in the cafeteria most days. Some bring their lunch, some buy it. Today I buy mine, I was up really early and didn't make anything before I left. The team and I chat about the samples I've collected, and what we hope they will tell us.
- 1.00pm** I'm in the lab with my soil and produce samples. These samples were collected from crops that I designed and have been conducting field experiments on. I'm hoping the samples will tell me a positive story. It won't be a quick story. It will take a few weeks to get the full story these samples have to tell.
- 2.30pm** While my samples undergo analysis, I dive into another part of my work. Understanding plant DNA. Better understanding about plant DNA will help me to find solutions to some of the biggest problems facing humankind at the moment - food security!
- 4.00pm** I pack up and say goodbye to the team. I had an early morning, and tomorrow I look forward to sleeping in.
- 5.00pm** I get home and can hear laughter and joy. My family is in the kitchen making dinner, it's one of my favourites. I join them and share some of my wins for the day. We always share our top three moments of the day, and one of our least favourite. My least favourite moment today was when I spilled my coffee before I even got in the car this morning. It went everywhere.
- 9.00pm** Time for bed. I hope to dream about something other than work! I love my job, but tonight I want to dream about flying.

# Agronomist/ Molecular Geneticist

**Thomas** is an agronomist/molecular geneticist who is working on finding smarter ways to grow food that doesn't harm the planet. Thomas combines cutting-edge science with farming practices to help create a future where everyone has enough to eat.

[futureyouaustralia.com.au/pathfinders/thomas](http://futureyouaustralia.com.au/pathfinders/thomas)

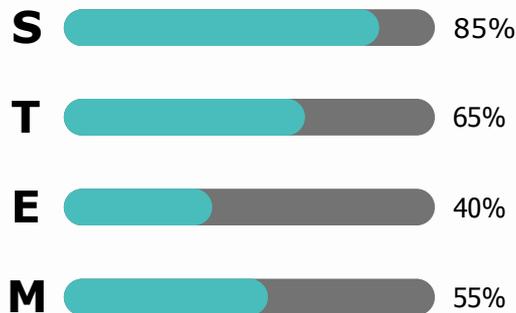


*"I help secure nutritious food for people everywhere."*



## STEM Meter

How much Science, Technology, Engineering and Mathematics (STEM) does this job use?



Source: [jobsandskills.gov.au](http://jobsandskills.gov.au)

## 5 reasons why you should do this job

- 1** Solve problems with creative thinking.
- 2** Work outdoors in nature.
- 3** Travel the world to share knowledge.
- 4** Work with passionate farmers.
- 5** Shape the future through innovation.

### 3 STEM skills required for this job

Biology

Critical thinking

Data analysis

### Subjects to develop these skills

Science

Science, Mathematics, Digital Technology

Science, Mathematics