Teaching Activity

Biscuit thief

Conceptual reasoning, 120–129
Basic logic, 120–129
Argument analysis, 120–129

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Learning intention

To develop relevant questions to assist in solving a mystery, to draw connections between information, to develop a theory based on available information and to discount competing theories based on available information.

Before you begin

- Prepare copies of the Biscuit thief worksheet (one per student).
- You may wish to prepare your own reference copy of the Biscuit thief theories (this is mainly intended as a teacher-only reference, but see the below activity for further details).

Activity one: investigating the crime scene

Tell

students that you will show them some information, before discussing and evaluating it as a class.

Note**:** you may choose to show or read out the information to the students.

Show

The Vernon family all live in the same house. The family members include:

- Marcia Vernon (grandmother)
- Bill Vernon (father)
- Sarah Vernon (Bill's daughter, 15 years old)
- Kira Vernon (Bill's daughter, 19 years old)
- Alex Vernon (Bill's son, 10 years old)
- Benji (pet dog).

Show

On Saturday afternoon at 5pm, Marcia Vernon baked a load of biscuits, which she was planning to take to a morning tea with her friends the following day. She put the biscuits in a jar on the kitchen counter. Afterwards, Marcia watched TV, and then went to bed at 9pm.

Show

Marcia woke up the next morning at 7am. She went to the kitchen and found that the biscuit jar was empty! All the biscuits she had baked the previous evening had disappeared. She took a photo of the kitchen, which is shown below (note: the gate to the right of the kitchen is a dog gate designed to stop Benji from coming into the kitchen).

Show

Marcia believes that **someone in the family must have taken the biscuits**. At breakfast, she asks every member of the family (except for Benji the dog) if they took the biscuits. They all say they do not know, and then they leave for the day.

Marcia thinks that someone in the family must be lying. She is going to work out who stole those biscuits!

Show

Marcia wants to ask the family members some more questions when they get home this afternoon. But first, she decides to look more closely at the kitchen – the scene of the crime. She phones her friend, Isla, to help her. Marcia tells Isla about the situation and sends a photo of the kitchen.

Isla says, '**I'll try to help you find out who it is. But first, I want to know more about what that crime scene looks like**...'

Tell

students to pretend that they are Isla. They only have access to the photo of the kitchen that Marcia has sent.

What questions would they ask Marcia about the kitchen (where the biscuits were stolen), and why?

Show

some examples of questions that Isla could ask, such as in the table below.

Questions that Isla could ask	**Why would she ask this?**
'Were there any fingerprints/handprints/smudges on the jar?'	The fingerprints or handprints could be matched to a family member.
'Were there any crumbs on the floor?'	This could provide information about what happened to the biscuits.

‘Was the lid of the jar securely closed?’	This could provide information about what happened to the biscuits.
‘Were there any chocolate smudges on any of the door handles?’	This could provide information about what happened to the biscuits.
‘How hot does it normally get in the kitchen?’	If it is hot enough, the chocolate in the biscuits might melt, which could be useful to know since it might have left a trail or smudges.
‘Is the jar that you put the biscuits in the exact same jar as the one in the photo?’	If it is not the same jar, then it is possible that the biscuits have not been eaten and that the original jar has been put somewhere else in the house.
‘Is the jar completely clean?’	This could provide information about what happened to the biscuits.

Activity two: considering the suspects

Tell

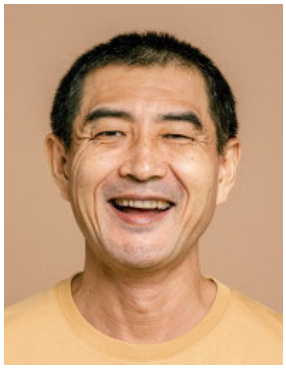
students that you will show them some more information, this time on each of the suspects.

Note: you may choose to share this information in different ways with students. The information could be shown, read out, or made into a jigsaw activity.

Show

To help her work out who might have taken the biscuits, Marcia writes down a few things that she knows about each family member on separate pieces of paper. Then, when the family get home that afternoon, she asks each of them some questions. She records their answers on the pieces of paper too.

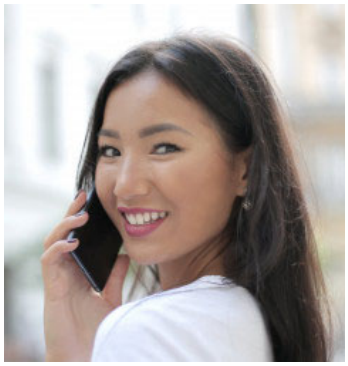
Show

Bill Vernon (father)	
	• Is vegetarian and gluten-free. • Loves Benji the dog (takes Benji for walks and feeds him under the table). • Is a light sleeper – he wakes up if there is noise. • Says he went to bed around 11pm and got up at 6am. • Says he was woken up during the night by a loud noise (that sounded like glass). • Says he saw the dog gate was closed when he woke up, around 6:30am

Sarah Vernon (daughter, 15 years old)

- Often forgets to close the dog gate in the kitchen.
- Often stays up very late in her room (even though she is supposed to go to bed earlier!)
- Did not eat much at dinner on Saturday night.
- Says she went to bed at 9pm and woke up at 7:30am.

Kira Vernon (daughter, 19 years old)

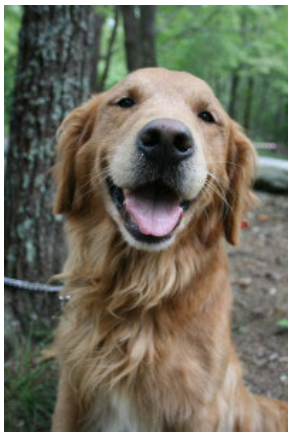


- Often brings friends and boyfriend home; they are known for eating snacks.
- Is very clumsy, and is always dropping and breaking things.
- Went to a party on Saturday night. Left around 9pm and returned in the very early hours of Sunday morning (says she doesn't remember when). Her best friend dropped her home.
- Says she went straight to bed after returning home on Sunday morning.

Alex Vernon (son, 12 years old)

- Sometimes sleepwalks, and then has no memory of doing so in the morning.
- Is known for picking up and moving objects around during his sleepwalking sessions (e.g., puts toothbrushes in the linen cupboard).
- Says he went to bed at 8:30pm and got up at 7:30am.
- Says he remembers feeling sick when going to bed (ate too much dinner).

Benji (pet dog)



- Eats almost anything, is always hungry and gets very excited if there is food around.
- Sleeps next to the kitchen (is separated from the kitchen by a dog gate).
- Is just tall enough to jump up and steal food off kitchen counter (and always does so if nobody is in the kitchen and he manages to make it past the dog gate).
- Is always the first to wake up in the morning (around 5am).

Ask

students develop a **theory** of what might have happened to the biscuits based on the information provided.

Notes:

- This activity may be done individually or in groups.
- Some example theories are provided in the next section, as well as in the Biscuit theories reference sheet. It is strongly suggested not to provide these wholly to students initially, as these theories are provided mainly for teacher reference. However, if discussion in class stalls, they may be judiciously used to keep the discussion moving.

Show

Theory 1

Benji ate the biscuits, and was assisted by Alex, who accidentally opened the dog gate while he was sleepwalking. Alex had food on his mind because he was full when he went to bed, which is why he went to the kitchen during his sleepwalking episode.

The noise that Bill heard was the sound of Alex putting the biscuit jar on the floor. The biscuit jar is completely clean because Benji licked up all the crumbs.

Theory 2

Kira and her friend were very hungry after their party. After Kira's friend arrived back home in her car, they decided to go into the house and find some food. They slipped in, opened the dog gate, grabbed the biscuits, then went back outside to Kira's friend's car, where they ate all the biscuits. They went back to the car because they knew that Bill would wake up if they made too much noise in the house.

The bang that Bill heard was coincidental, and was either caused by Alex (sleepwalking) or Sarah (staying up late) earlier in the night.

Theory 3

Bill, Sarah and Kira are all responsible. Sarah is lying about her bedtime (as usual) and was hungry (as she didn't have much dinner), so she had a few biscuits late at night. Kira also had some when she got home from her party, and then Bill had some (and fed some to Benji, which he is known to do) when he woke up in the morning. Because Bill was the first one up, he had time to wash the biscuit jar, which is why it was clean.

It isn't really reasonable for one person to eat a whole jar of biscuits, which is why it took **several** people to eat them all.

Bill, Sarah and Kira are all lying to protect each other. This is because they all know that they're jointly responsible. Bill knows that Sarah had some biscuits, since he himself was up late. Sarah and Bill know that Kira had some, since her arriving home early in the morning would've woken Bill up, and Sarah's room is next to the kitchen. And Sarah and Kira know that Bill had some, since whatever was left in the morning must've been eaten by somebody!

Ask

students to share their theories (if working in groups, students might share their theory as part of a presentation). As students are sharing their theories, ask the rest of the class to consider evidence **against** the theory, or reasons why the theory is **not** sound.

Extension activity

Tell

students to imagine that they could ask **two more** questions of any of the family members (except Benji), and to assume that the family members would have to answer these questions truthfully. What questions would they ask, and why?

Discuss

the following with students:

- Assuming the questions are answered in the way that the student suspects is true, would this cause them to change their previous theory?
- Would it be possible to definitely say who was responsible for the disappearance of the biscuits if these two questions were answered?

Related activities below the level

- Changing school hours: arguments for and against

Related activities at the level

- Dinocephalosaurus: analysing a scientific argument about fossils
- Body image
- False causes
- Student lunch guests: applying logic to a social situation

Related annotated questions

- Evaluates the degree to which a statement is supported by data given in the form of a pie chart 2
- Evaluates the degree to which a statement is supported by data given in the form of a pie chart 1