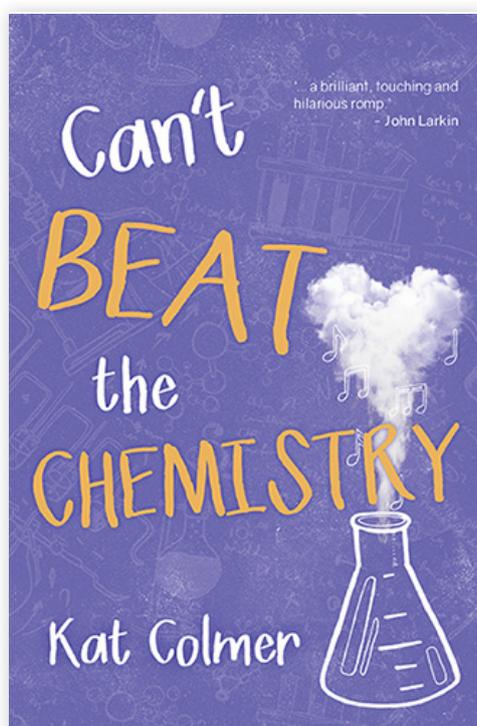


TEACHING NOTES



Can't Beat the Chemistry

By Kat Colmer

ISBN: 9781925563696

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Reading level: 13+ years

There are only two things MJ wants in her final year of high school: glowing grades, and to convince uber-smart chiselled-jaw Jason they'd be a winning team outside the science lab as well as in.

Tutoring deadbeat drummer, Luke, isn't part of the plan. After all, he has average intelligence, takes disorganised notes and looks like a partied-out zombie at their study sessions! Not even his taut biceps will win MJ over.

But MJ learns that she could be tutored in a few life lessons too: That sometimes there's good reason to skip chemistry tutorials. That intelligence is so much more than a grade average.

And that sometimes you can't beat the chemistry.

Themes

- Nature of intelligence
 - Friendship
 - Family
 - Stereotypes
- Identity and self

Discussion questions and classroom activities

THEMES

Nature of intelligence

1. Albert Einstein said, 'The true sign of intelligence is not knowledge but imagination'. How is intelligence defined in our society today? What do *you* believe makes someone intelligent?
2. 'All my life I've been told to look forward, look up, look to better myself' (page 61). Growing up, MJ had very high academic expectations placed on her. What kind of expectations did Luke have placed on him?
 - What was the effect of these expectations on MJ and Luke's beliefs regarding what they thought they could or couldn't achieve in their lives?
3. 'There was this music teacher, Mr Lane. He saw past my inattention and disorganisation, glimpsed something no one else saw – a potential nobody else bothered looking for' (page 59). Luke's music teacher is a source of encouragement early on in his life. In what ways does MJ become a source of encouragement to Luke throughout the novel?
4. Despite research, there is still no consensus as to what actually constitutes intelligence. One theory by Dr Howard Gardner, the theory of multiple intelligences, suggests human intelligence is much broader than traditionally believed. In the following table, put a tick next to the type of intelligence MJ and Luke show signs of having. Give an example from the novel for each.

Intelligence type	Capability with...	MJ	Luke	Example
Linguistic	words and language			
Logical-mathematical	logic and numbers			
Musical	music, sound, rhythm			
Bodily-kinesthetic	body movement control			
Spatial-visual	images and space			
Interpersonal	other people's feelings			
Intrapersonal	self-awareness			

5. For many years, intelligence was seen to be 'fixed', that you were either born intelligent or not, and there wasn't anything you could do to change that. Recent theories, however, say it's more effort than intelligence that leads to achievement. Give an example from the novel that shows a character's effort leading to achievement.
6. What questions does *Can't Beat the Chemistry* raise about the nature of intelligence and its importance to our self-worth?

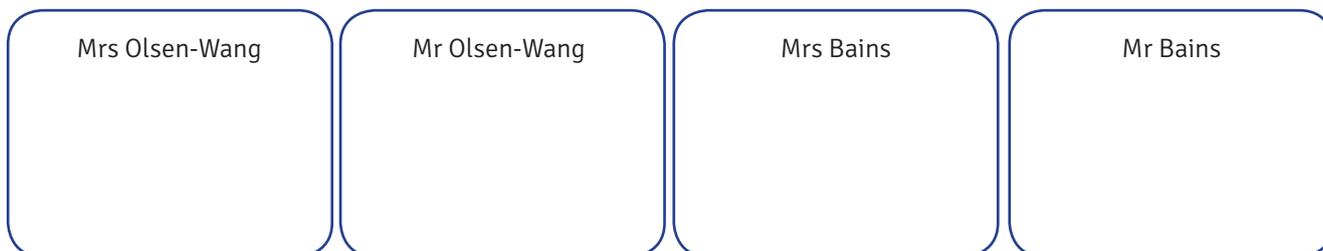
Friendship

1. MJ's friendship with Sandy is part of the reason she agrees to tutor Luke. Do you think it was okay for Sandy to ask that favour of MJ? Why/why not?
 - Make a list of all the ways Sandy and MJ are good friends to each other, and the ways they are not. How do they overcome conflict between them towards the end?

- ‘...my history of holiday study camps, piano intensives and essay writing workshops meant nobody bothered to ask me along on their trips to the movies or the shops...’ (page 248). MJ’s heavy study schedule and consequent social isolation during high school is a reason why Sandy is her only friend. What personal characteristics or interests do MJ and Sandy have in common?
- ‘A friendship that doesn’t expect perfection from me. A friendship that makes me feel good about myself. A friendship I’ve grown to value, maybe even more than turning an A minus into an A’ (page 188). Make a list of the qualities you believe a good friendship should have.
- Apart from his developing friendship with MJ, Luke has friendships with Theo and Zac. Are these positive and supportive friendships or not? Give examples from the novel to support your answer.

Family

- What sacrifices do MJ and Luke make for their families in the first half of the novel?
 - Do they make these sacrifices willingly?
 - Is it fair of their families to ask these sacrifices of them?
- In what ways do their families’ expectations and circumstances shape who MJ and Luke are? How might Luke and MJ’s lives been different if Luke’s father had not left and MJ had never found the letter from the Hutchinson’s Society?
- “Dad’s great, but my mother, she’s...” MJ works her teeth over the corner of her bottom lip. “We don’t always see eye to eye” (page 179). What kind of parents are the Olsen-Wangs and Bains? Fill in the diagram using words and phrases from the word bank. Add any others you can think of.



absent	supportive	involved	disinterested
wants best for child	low expectations	believes in child’s abilities	loving
understanding	doesn’t believe child can achieve	accepting	affectionate
present	controlling	demanding	high expectations
compassionate	empathetic	emotionally abusive	nurturing

- “Don’t let her collected exterior fool you,” Dad says like he’s heard my uncharitable thought. ... “She’ll be there. Don’t doubt that, MJ. Your mother loves each of us so much” (page 227). Do you agree with Mr Olsen-Wang’s claim about MJ’s mother?
 - How are MJ and her mother similar in how they relate to people?
 - In what ways might Mrs Olsen-Wang’s expectations of MJ be born out of love for her daughter?

Stereotypes

- ‘Judging character is not one of my strengths, but the way Luke is slouching, arms folded, the apology in his eyes replaced by a defiant glint, he looks the very picture of a deadbeat drummer’ (page 33). What is it about Luke’s behaviour that has MJ convinced of this?

- What are some other rock musician/drummer stereotypes you can think of?
 - If Luke had been a classical music student, studying violin or cello, how might MJ have interpreted the same behaviour?
2. “You’re really rolling out the stereotypes here.” She crosses her arms. “Well, stereotypes wouldn’t exist if there wasn’t some truth to them” (page 118). Do you agree with MJ’s statement?
 - Are there benefits to stereotypes?
 - What are the dangers of labelling people and buying into stereotypes?
 3. Other than the deadbeat drummer stereotype, what other stereotypes does the novel touch on? Write them in the table below, then explain, using examples and quotes, how the author twists or inverts each. (examples include conservative Christian, shy Down syndrome teen, Asian tiger mother)

Stereotype	Author’s twist on stereotype

Identity and self

1. ‘I know the sensible thing to do. As Theo would say, the paint-by-numbers option. Within the lines. I close my eyes, an attempt to block out the truth I don’t want to see. It’s no use. The thud-thud-thud of my heart screams it loud and clear as the bell for start of class shrills through the building – my edges are already blurring. It’s only a matter of time before I’ve lost sight of who I am. Or worse, of the person Luke makes me want to be’ (page 217).
 - MJ uses the art-related metaphor of her ‘edges blurring’ several times to describe how she feels about her lack of identity. In what ways is this an effective metaphor? What might be the significance of her using a metaphor linked to her brother’s passion instead of her own?
 - Think back to a time where you’ve had to decide between a safe option or one that pushed the boundaries. Write a letter to a friend of yours who didn’t agree with your decision, letting them know why you decided on the course of action you did, the consequences of your decision, how it made you feel and whether you would make the same decision again.
2. Luke’s identity is heavily linked to his passion for music and drumming. Find examples in the text where music or drumming are used to illustrate an aspect of Luke’s character or personality. What effect does music or drumming have on Luke in these examples?

WRITING STYLE

Point of view

1. The alternate first-person point of view between MJ and Luke allows the reader to experience the story from both characters’ perspectives. How might the story have been different if it had been told only from one character’s point of view? Would it have been less or more effective?
 - Whose point of view would you tell it from? Discuss with your class.
2. We only ever see Sandy or Theo through MJ’s or Luke’s eyes. Pick a scene Sandy or Theo are in, and rewrite it from their perspective. How might they see things differently to MJ and Luke?

Literary devices and description

'Her head jerks back and there's a return of the zip-lock bag. I'm ready to bet my sense of rhythm she's about to spin me another tall tale when she lets out a defeatist sigh, the tension in her shoulders deflating like a punctured tyre' (page 52).

'I dig out his periodicals and plonk them next to my laptop – right in his view. According to Sandy, guys are visual creatures, so here's hoping this stack of peer-reviewed temptation raises Jason's pulse rate' (page 41).

1. Take a look at how the language and descriptions differ depending on the point of view. The author uses different similes, metaphors and descriptive writing depending on whether we're experiencing something through Luke or MJ's eyes. Find an example of a simile, metaphor or other descriptive writing that you feel illustrates either Luke or MJ's voice well. Read it out to a partner and have them guess which character is speaking or thinking.

Character

'She reminds me of a hedgehog: small, kind of cute, but all balled up and prickly, especially if you get too close' (page 12).

2. At the start of the novel, Luke's secret nickname for MJ is 'prickly little hedgehog'. What aspects of her character and personality is he referring to here?
 - How does his view of her change by the end of the book? Give an example from the text to support your answer.
 - Make a list of nicknames you have for people in your life. What do these nicknames indicate about your relationship with these people?
 - Sandy calls MJ an I-only-get-distinctions brainiac, Theo calls her Macca, MJ's mother calls her Mackenzie. What do these different names reveal about the type of relationship MJ has with these people?
3. Theo tells MJ that Luke is 'one of the good guys' (page 110). If character is revealed through a person's words, thoughts and actions, find examples in the text that support this view of Luke.

KEY CURRICULUM AREAS

English

ACELA1541
ACELA1542
ACELT1807
ACELT1630
ACELY1729
ACELA1551
ACELA1553
ACELA1562
ACELT1772
ACELT1638
ACELY1745
ACELA1569
ACELT1641
ACELY1749

Science

ACSHE160
ACSSU184
ACSSU185
ACSHE191
ACSHE194
ACSHE230
HPE
ACPPS070
ACPPS071
ACPPS074
ACPPS075
ACPPS079
ACPPS089

About the author

Kat Colmer is a Sydney-based Young Adult author and teacher librarian who writes coming-of-age stories with humour and heart. The recipient of several writing awards, her debut novel *The Third Kiss* (Entangled Teen) won the *On the Far Side* contest for best Young Adult Paranormal Romance.

Kat has a Diploma in Education and Masters in Teacher Librarianship and loves working with teens. With over a decade of classroom and school librarianship experience, coupled with her young adult fiction writing, Kat enjoys running book clubs and writers' groups, and is a strong advocate of #LoveOzYA in both her role as an author and teacher librarian. *Can't Beat the Chemistry* is Kat's second novel.



Author note

As a teacher, I have a deep interest in learning and have always been fascinated by theories of intelligence. The idea that intelligence is wholly innate and fixed has never sat right with me, which is why Carol Dweck's work on Fixed and Growth mindset, supported by research in educational neuroplasticity, resonates with me. Dweck uses Fixed and Growth mindset 'to describe the underlying beliefs people have about learning and intelligence'¹. Her research shows that when students believe their efforts can make them smarter, they work harder and achieve greater results. It shows that someone's expectations about their ability have an effect on the outcome, and encourages the belief that effort has more influence on achievement than perceived innate intelligence.

Over the past twenty years working in many different schools, I've witnessed both positive and negative educational and wellbeing outcomes as a result of the expectations placed on students, and I wanted to write about the effects these expectations can have on individuals. The stresses MJ experiences because of the high academic expectations her parents place on her are very real for many students. Students may also relate to the damage to self esteem and self worth Luke carries after years of his father's mantra that his struggle to learn means he lacks intelligence. I hope *Can't Beat the Chemistry* shows readers that intelligence is multi-faceted, encompassing not just academic but also emotional and social skills as well. And I hope everyone who turns the last page realises that, on so many levels, the brain can't function without the heart.

¹Dweck, C 2017, 'Decades of scientific research that started a growth mindset revolution', *Mindsetworks.com*, <https://www.mindsetworks.com/science/>