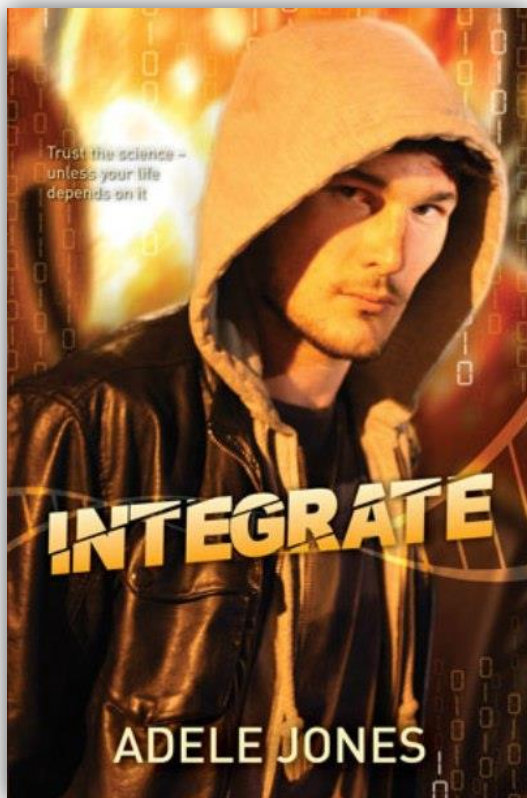




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Teaching Resources



Integrate

by Adele Jones

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07-32451938 info@rhizapress.com.au

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Awarded the 2013 Caleb Prize for unpublished manuscript, *Integrate* takes the reader on a fast-paced search for truth as Blaine grapples with his unexpected circumstances and his personal value in a world that idolises perfection and achievement.

Reviewers on *Integrate*:

'Integrate hooked me from the first page. I loved the way mystery and suspense was intertwined with important questions about identity, ethics and the true value of being human. With so much bleak YA fiction on the market, it's refreshing to see a book that offers hope without sacrificing a rollicking plot and engaging characters. Highly recommended.'

Nola Passmore, co-founder of The Write Flourish

'Engrossing. Fast-paced. Blaine's life is turned upside down when a miracle cure is found for his crippling genetic disease. It's turned upside down again when a rogue researcher holds him captive for testing ...'

Omega Writers, CALEB judges

'... despite dealing with some weighty themes (genetic disease and therapy, disability and human worth, adoption, faith and corporate ambition), Integrate is not a heavy read. Nor is it weighed down with techno-babble.'

Jeanette O'Hagan, science fiction and fantasy author

'Short, succinct chapters keep the momentum rolling along, probably fast enough to please the most restless and easily distracted young adult reader ... The exciting, 'in the nick of time' sort of ending has an edge of the seat quality too.'

Paula Vince, award-winning author

'YA novel Integrate was a real page turner. The science behind the medical mystery was fascinating and gave an interesting insight into gene therapy. It was also a great mystery and take of teenage romance. The representation of positive teen characters provides an encouragement to readers to see the worth in others. A great read for boys and girls.'

Elaine Fraser, Young Adult fiction and Inspirational non-fiction author

1. INTRODUCTION

Trust the science – unless your life depends on it.

Just weeks before his eighteenth birthday, Blaine Colton seems to have the world at his feet. Nearly three years earlier science rewrote his genetic death sentence, allowing him to leave behind constant health crises, disability and finally do things everyday teens often take for granted – including hanging out with his best friend and the girl of his dreams.

But Blaine’s new life comes crashing down when he’s told the treatment was never approved. Thrown into conflict over the claimed illegitimacy of his gene therapy, along with conflicting revelations regarding his adoptive parents’ motives in enlisting him in the programme, he finds himself questioning everything that matters in his world.

When life-sustaining treatment is withheld and contact with his parents refused, the gravity of Blaine’s situation increases, along with his determination to find answers. This sees him escaping the institute where he’s being held and over-ambitious Chief Scientist, Melissa Hartfield. In a race against time, he embarks on a journey of discovery broaching issues of identity, faith, love and self-worth.

2. PLOT SUMMARY

Blaine Colton had been handed a genetic death sentence until revolutionary gene therapy changed his life. Nearly three years on, now living a relatively normal existence, he is called to an unscheduled post-treatment appointment just weeks before his eighteenth birthday. Informed that the life-saving procedure used to treat his Mitochondrial Disease was never approved, he finds himself held against his will for his status as an apparent illegal GMO (genetically modified organism).

Subjected to constant testing, refused contact with his parents and deprived of life-sustaining medication, Blaine begins to suspect something is wrong. Wanting answers, he decides to escape the institute and ambitious Chief Scientist, Dr Melissa Hartfield. And he does.

Now a fugitive with a failing body, Blaine unexpectedly reconnects with former neighbour, Sophie Faraday, who is also the girl of his dreams. Reluctant to risk her involvement, he attempts to hide his predicament, nor is he sure Sophie will even believe his word over Dr Hartfield’s statements about him.

Without the medication he needs, Blaine’s health rapidly deteriorates. He realises his only hope to determine the truth about Dr Hartfield’s claims and establish what’s really happening to his body is to find Professor Ramer, the developer of his therapy. But it seems the professor has vanished and time is running out. Fast.

When Blaine finally finds a way to access the medication critical to his survival, Dr Hartfield anticipates his move and places him back in the facility. There she reveals she is quite willing to let him die if he doesn’t sign away his rights in order to benefit her research.

Unbeknownst to Blaine, Dr Hartfield's betrayal has been recognised by Sophie, her twin brother and his parents, and they have begun tracking him down. Even the professor has been contacted and is on his way. With the authorities backing them, together they rush to find Blaine – but only once he's located will they know if they have beaten Dr Hartfield at her own game.

Intervention comes with Professor Ramer leading the charge. He finds Blaine critically ill. Transferring him to a facility in an undisclosed location, Ramer oversees Blaine's treatment until he has recovered to a functional level. Unfortunately, Dr Hartfield's neglect has left its mark on Blaine's health, and other indeterminate issues have also been flagged. This is a timely reminder that Blaine's genetic disease and its impact is something he has to live with in some form or another for the rest of his life; gene therapy or not.

On the day of his eighteenth birthday, Blaine is allowed to return to his parents. With their blessing and the professor's encouragement, he sets up a date with Sophie for a day of impossibilities. 'After all, he would only turn eighteen once.'

3. VALUES AND THEMES

The measure of a person's worth

This theme is central to *Integrate*. Modern redefining of the value of human life has changed how we perceive the vulnerable in our world, making such persons at risk of being treated as disposable or seen as lesser contributors to the wider community. *Integrate* encourages readers to look beyond the performance criteria often used to measure worth and consider the humanity of the vulnerable in our society. This work also draws the reader's attention to a number of related themes, promoting reflection on perspectives and values linked to current topics, which are detailed below.

Bioethics:

Genetic modification and gene therapy are fundamental to the plot. As such, bioethics is an underpinning theme in this work. The concept of who decides what is ethically acceptable in scientific experimentation and why is explored, along with respect for human life and provision of life-promoting medical treatment to vulnerable members of society. Often matters that seem black and white, based on their ultimate benefit, are swiftly revealed to require further consideration, particularly in regard to genetic manipulation in humans.

Bioethics is a complex matter and issues relating to treatments for Mitochondrial Disease are current topics in the media and within government agencies (Australian Mitochondrial Disease Foundation A 2014). One particular approach, termed 'three-person baby', has recently attracted a great deal of debate (Branley 2015; Donovan 2013) and is now approved in the UK (Gallagher 2015).

When proposed cures for genetic disorders involve creating life by varied means, such as manipulating and introducing new genetic material into a host at an embryonic or even single cell stage, many factors must be considered. Issues relating to the resulting child's

identity and long term outcomes (for example, those identified for donor children (The Commission on Parenthood's Future 2010)), the potential for procedures to go wrong, and whether the procedure destroys life to create another are just a few of many ethical considerations.

Several passages from *Integrate* relating to bioethics are referred to below:

“In my opinion, as this institute’s Biosafety Committee Chair, the procedure wasn’t approved by the appropriate regulating body ...” p. 2

“... All work involving genetic manipulation in Australia must be approved by the appropriate authorities *prior* to its undertaking ...” p. 6

‘For the first time since his treatment, Blaine felt a claw of fear. He knew that when DNA was joined together then, given the right sequences, previously repressed gene could be activated, or even non-existent open reading frames unintentionally created. Previously repressed genes were one thing, but an entirely *new* sequence could produce *anything* ... The hook of fear pierced deeper. *What if Professor Ramer invented a new disease and, through me, released it to the world?*’ p. 23

‘Soon Eddie found his voice. “You did a medical degree, Melissa! You might have done biomed in your higher degrees, but you’re a medical researcher! A doctor! You trained to *preserve* life!”

“And promote it through research!” Something in Melissa snapped.’ p. 176

“... Nature has determined he should die! You can’t stop it.” p. 177

Activity

Have the students consider how ethical boundaries are determined by government and institutional authorities and how this might link to shifting moral positions in society.

- What societal attributes do they believe contribute to perspectives of what is ‘acceptable’ and why might this change from one generation to another? (Consider what practices and knowledge bases inform our values.)
- Have students reflect on the question: Just because science can, should it?

Identity and self-worth:

Although Blaine is nearly eighteen years old, he has only had the freedom of self-determination (ie: capacity to decide his own actions, emotional expression and decisions) for less than three years. He is intelligent but lacks life experience. Nothing about his life is status quo – not his education, his upbringing or his social connections. Everything has been influenced in some way by his illness. While still formulating his own place in the world, he finds himself forced to question his one constant in life: his adoptive parents and all they represent. These doubts threaten to undermine his fledging belief in himself and his abilities.

'For the benefit of surveillance, Blaine feigned disinterest. Best to let them think a nearly eighteen-year-old rehabilitated vegetable knows nothing about immune responses and genetic engineering.' p. 22

'But was that the truth? Had his parents intervened selflessly? Or were they victims of cruel fate, thinking they were getting an unwanted baby with several simple developmental delays due to a temporary health problem? ... It had always been beyond his comprehension as to why they'd picked him with all of his disabilities.' p. 24

'Life was busy. That was a fact. Blaine also suspected it was probably a relief for them to not have to sit with him for hours on end. Even when he'd undergone Professor Ramer's therapy, it was a long time before he made significant progress with his physical movement. Certainly it would have been more than a little frustrating waiting for him to do something that the average Jack could manage without thought.' pp. 69-79

'His parents had always reminded him of how special he was and how his life had a purpose beyond what he imagined. Maybe this was for the best. Maybe this was his value; his destiny. To give up his life, so that others might live.' p. 168

Activity

At the top of a fresh page ask students to write the heading, 'I am ...' In one or two minutes have them write down as many things as they can in response to this prompt. At the end of this time ask them to:

- Mark each statement as positive, negative or neutral.
- Ask, 'If I [teacher] were to collect and read these lists, what would it tell me about you?' (self-esteem, body image, relationships, etc)
- Ask, 'If the lists were to be read aloud, is there anything you would change?'
- Ask students to consider their ratings (+ve, -ve, neutral) and reflect on why they've assigned them to the respective statements.
- Can they identify any overarching themes?

Value of life:

What determines the value of a human life and how is this value measured? In formulating a position on the importance and 'right to life' of an individual, it is easy to develop conflicting standards, not only as individuals but even as a society. For example, in some Australian states it is legal to abort a baby beyond 24 weeks, as long as approval is gained from two medical practitioners (Children by Choice 2015), yet equal medical resources will be expended on fighting for the life of a premature child.

Decisions of 'right to life' are frequently made on the quality (or perceived quality) of a person's life, yet who decides what contribution to society makes an individual more worthy of living? The excerpts below highlight some related perspectives broached in this novel.

'With a twist of a knife in his heart, he remembered the diamond pattern on the leggings of the woman who stood in front of his wheelchair and berated his mother for wasting her public resources on a child that nature had destined to die. *And the stone-washed jeans of the man who spat at ...*' p. 24

'Inside were three severely debilitated boys. He watched them closely as they awaited their turn to go beyond, into the treatment room.

That was me three years ago.

Trapped in his own body with his own thoughts. Unable to believe his parents' assurance of love and worth. *What good was I then?*

What good are they now?

Blaine fell back a step, unable to believe the thought that had shot through his head.' p. 58

'Valuable?

Scenes, like washed-out shadows, flicked across his mind.

What value was a kid in a chair without speech or motor control?

A previous treasure

What value would he be if he found himself back in that place? Would his parents still want him? Would anyone want him? p. 157

Activity

Have the students reflect on what they believe determines the value of a person. Given Blaine's circumstances, would Blaine's birth mother have been justified in aborting him if she had been aware of his genetic disorder? Students might wish examine the article on [Stephen Hawking](#) (Dobson 2002) in formulating their position, along with other famous identities living with serious medical conditions and/or physical disabilities: for example, recently deceased comedian and disability advocate, [Stella Young](#) (Australian Broadcasting Corporation 2014) or vision impaired singer, [Andrea Bocelli](#) (2014).

Disability:

Hearing the word 'disability' can evoke immediate assumptions and stereotyping towards an individual's capacity and intelligence, and even uncertainty as to how to best respond. Disabilities are not always visible or even obvious, but can bring many challenges to those living with this label. People with a disability are identified as an at risk group, specifically in relation to some of the other themes explored through the story. For example, Homelessness Australia (2013) reports 27.4% of people with a disability are living below the poverty line and these individuals are also at greater risk of becoming homeless.

Imagine if a disability, *any* disability, could be removed. For Blaine this became reality. Yet in many ways, as demonstrated in the selection of passages below, even after his successful gene therapy he still responded out of the emotions, experiences and perceptions-of-self associated with his genetic disorder. He even found it difficult to believe his personal challenges could have a positive influence on somebody else's life. We also gain an impression of other people's opinions of Blaine through their actions.

'He remembered all the times his mother had tried to redirect the talk in front of his wheelchair by people who assumed he had zero IQ. In the main her efforts had been futile, and he'd received quite an education!' p. 16

'They'd gather at South Bank to see the New Year in and watch the fireworks displays and festivity. The crowds were so tightly-packed it was difficult to move, especially with a wheelchair in tow. But last year he hadn't needed a mobility aid.' p. 68

"So what will you do, then?"

"Don't know yet. I have to think things through; try and figure out a way to get the meds I need so I don't end up a waste-of-space vegetable again."

"Blaine, don't you *dare* say that!"

He didn't look at her. Instead, Blaine pushed himself further back on their seat and fiddled with the zipper of his cargo pocket. "It's true, Sophie. What good was I?" He turned to study her face and was surprised to see tears pool in her eyes.' p. 99

'Blaine watched as she ran her fingers over the bench in the small gap between them.

"You even inspired me to do science." Her face came up, her eyes once again radiating life. "I could see you trapped by your failing body, this great listener with the impish sense of humour. I remembered your parents saying you'd developed some language at a toddler age, but as your condition deteriorated it seemed lost forever. I wondered about the things you must have tried so hard to get out.'" p. 101

Activity

Ask the students to think about their strengths and weaknesses (not necessarily physical).

- Focusing on one weakness, have them write a brief passage (200-300 words) describing the emotions they experience when this weakness is exposed, including what they believe others are thinking about them. Have them write a second passage of a similar length, imagining they are now the best at this activity, skill or situation.
- **Reflect:** How difficult was it to write positive things about their area of weakness? Was it easy to see themselves succeeding?
- Discuss what it meant for Blaine to have his disability largely removed. (Perhaps it would help to consider how he felt when it seemed he might regress.)

Genetic modification: genetic disease and therapy:

Genetic disease may be more prevalent than you expect. Take, for example, Mitochondrial Disease and the large number of deletions in both mitochondrial and nuclear DNA that can in some way impact mitochondrial function (the powerhouses of our cells). It is estimated as many as 1 in 250 people have some type of mutation affecting the mitochondria, many unaware (Australian Mitochondrial Disease Foundation B 2014), but recently it has been suggested that many other genetic disorders may also be closely linked to mitochondrial dysfunction (Trophos 2012) – a discussion point on which further research is required.

Although there have been a number of exciting advances in gene therapy for treatment of genetic disorders, presently these applications are limited. Our bodies are highly complex and this sophisticated function also complicates the mechanisms by which damaged DNA can be repaired, exchanged or overridden by functional sequences. Gene therapy is also closely linked to bioethics, as discussed previously, and even if a given approach seems positive, elements of that technology may be prohibitive if they cross acceptable ethical boundaries.

‘She watched them closely, measuring their reactions to ensure that, as far as they were concerned, her explanation fell entirely within the spectrum of reasonable thought. “If you are familiar with Mitochondrial Disease, you would know each case can vary highly depending on the degree and type of genetic mutation; whether it’s a mutation in the nuclear or mitochondrial DNA; the loci on which the defective gene – or genes – sit. Such disorders are divided into many groups based on genetic and symptomatic categorisations, with some individuals minimally affected by their condition, which in others it presents as a life-threatening illness.”’ p. 40

‘He ensured he had their attention. “It’s a compound the body cannot synthesise or, under normal conditions, utilise. Essentially it’s inert, except to cells in which the defective DNA has been successfully exchanged. I embedded sequences that, once integrated along with the functional DNA, enable the compound to be taken up by the cell to induce a cascade of rescue processes. If we’re lucky it will take effect in time. If not ...” His face sobered.’ p. 178

“... What I can say is the treatment was multi-modal and involved both nuclear and mitochondrial rescue mechanisms. I realised when developing an animal model, that the same technology that generated the condition in animals could be used in reverse.”

“So I’m not carrying some exotic disease?”
Ramer smiled and shook his head.’ p. 182

Activity

Ask students to undertake online research to explain what is meant by the statement, ‘Mitochondria are the powerhouses to our cells’. Have them extend their research to include ways in which mitochondrial dysfunction can impact someone’s life. (Hint: The [Australian Mitochondrial Disease Foundation](http://www.australianmitochondrialdiseasefoundation.org) might be a good place to start.)

Adoption:

Adoption is a complex matter where an individual is raised by an adoptive family, whilst having a different (biological) family of origin. Much research has been undertaken on this topic, and although individual adoptees may have varied responses to their situation and upbringing, consistent behavioural and emotional markers have been identified within adoptees as a whole. For example, it is recognised adoptees frequently experience abandonment issues, which can impact self-worth and lead to other problems (International Adoption Stories.com nd).

As described in the MN/TX Adoption project (University of Massachusetts Amherst 2008, p. 1 of 2), 'Adopted youth are confronted with the challenge of making meaning of their beginnings, which may be unknown, unclear, or otherwise ambiguous. Meaning-making (eg: Kegan, 1982; Klinger, 1998) involves constructing a story about oneself that attempts to answer many questions ...'

Below are passages reflecting Blaine's conflict over the revelation his parents didn't know he had a genetic disorder when he was adopted.

"That's a lie! My parents knew. They adopted me to help *save* my life."

She took a long breath and shook her head. "Blaine, I'm sorry. I thought they would have told you. I suppose it must have been such a shock, and then to carry the burden of your care into your late teens ... I understand them wanting to explore every treatment option within their means."

"They said I was a gift – special, just for them."

She watched him flush, as if he realised the childishness of his words. "Blaine, they may have felt that, but I'm telling the truth. You can *trust* me. I have a copy of your medical records. It's there in black and white. Your condition *wasn't* diagnosed until *after* your adoption." p. 21

'For some reason he couldn't get past the signing of the forms attached to his gene therapy ...

Had they intentionally signed away his right to live beyond the shadow of ARI? If what Melissa Hartfield said was true, they had essentially sold him for nothing with no guarantee of any returns. Was he just an inconvenience; better living out his days as an object of study?

Do they regret adopting me, after all? p. 117

'He remembered how patient his parents had been with him. For so many years they had nursed, fed, bathed and changed, loved and sung and played and given.

And yet I doubt them so easily? Hope gained another small tick.' p. 135

Activity

- Ask the students to reflect on how Blaine might have felt when told his adoptive parents may have lied to him about the circumstances surrounding his adoption.
- Do they think his reaction was reasonable? Discuss.

Faith:

Belief systems are a key foundation of an individual's worldview, values and life choices. Depending on the type of beliefs prevalent within a community, this may also have a significant influence on moral perspectives and ethical decisions of organisations or governing bodies. Below are several excerpts relating to this topic.

"Dad, you've been planning this for months. Go. Have fun. I'll be okay. Yeah, I know." *You love me and you'll be praying.* Blaine nearly rolled his eyes. "You too. Bye." p. 9

'But what sixteen year old defies a genetic death sentence and lives to tell the tale? A very blessed one.

His parents said stuff like that to him every day. Blaine hammered the back of his head against his pillow, as if this action could knock the words from his head. He was always blessed. Always a gift from God. Just like they were always praying. He didn't resent his parents' faith, he just wasn't sure where he fit with it, or it with him. In reality his life had never been his own to decide.' p. 18

'The instant these words sprang from his mouth, the image of a calling card caught up in spider's web wedged in his mind. Impressions followed like running water in a fast flowing stream: a red convertible left unattended for a moment; free hot dogs; Sophie with her phone and guest gym pass; the drunk and his blanket; the truck and all the other 'coincidences' that had kept him from harm in recent days.

Blaine felt his doubt recede like a wave rolling off a beach. *God, right now I'll take all the help I can get.'* pp. 157-158

Activity

- Have the students discuss what they think the actions of the main characters of *Integrate* reveal about their belief systems and values. Provide three or four examples.
- Do you think Blaine's questions about his parents' beliefs are just a normal part of a young adult establishing their own identity separate to their parents, or might there be other factors influencing his thinking? Discuss.

Corporate ambition:

It is common for the corporate world to celebrate high achievers, but success can come at a price. These sacrifices may be weighed against certain gains, which include financial benefits, respect in a given industry, influence or position. Integrity is another highly esteemed attribute in society, and when making decisions based on career ambitions, values and actions can become incongruent for a variety of reasons. The following excerpts demonstrate conflicting perspectives of key characters in relation to corporate ambition, success, personal cost and integrity.

'Finally Eddie lifted his head. "Look, Len, things have been different since Ramer left."

"No kidding." He let out a low whistle. "I remember the day that determined little blonde marched in here with her entourage of researchers. Made no secret of her ambitions to outdo her former supervisor."

"Wonder if Professor Ramer knew just how seriously she'd take that challenge?" Eddie's gaze drifted to a distant point.' p. 53

'Eddie folded his arms and chuckled. "It's not that important to me. Besides, it was *you* who had to know what Ramer did. *You* who had to pull the illegal GMO thing." He looked her right in the eye, as if daring her to stop him. "Why couldn't you just leave the kid alone?"

“And always be the ‘me too’ scientist? *Always* the one on Ramer’s heels with my research echoing *his* achievements?” p. 77

‘Eddie grabbed her arm and gave her a slight shake. “I’ve worked out why you’re doing this. It’s AXON Corp. isn’t it? If you don’t produce results, they’re about to take back their four million dollar grant. True?”

Melissa felt her face flinch as a nervous pulse jerked next to her eye.’ p. 169

Activity

- Have the students reflect on what they believe had the greatest influence over Melissa and Eddie’s actions. (Consider Extrinsic versus Intrinsic motivators (Psychology and Society nd))
- What part, if any, might the following factors have played?
 - The competitive nature of research funding allocations.
 - The desire to be perceived as successful.
 - The hope of forming a relationship.
- Do their motivations and accomplishments make their actions right?

Intellectual Property (IP):

Many organisations require employees to enter IP agreements to protect sensitive information such as company innovations; created designs, objects, documents or data; research findings; and commercially viable product developments from being shared with competitors or released into public circles where it may be misapplied. In science it is common practice to restrict research findings to the organisation facilitating and/or financially supporting the research. Given funding is often dependant on investigative outcomes and fosters highly selective and mutually beneficial industry collaborations, there has been debate over this practice even at United Nations hosted forums, claiming such IP rights may be denying the general populous the benefits of scientific progress and related applications (Saez 2013).

Recent awareness of Henrietta Lacks, the African-American woman from whom HeLa cells were harvested, has highlighted the complexity of this issue. Despite the HeLa cell line being vital for the advancement of groundbreaking medical research, Henrietta Lacks had no knowledge of her cells being harvested and used, nor did this poor tobacco farmer receive any compensation for this ‘donation to science’ (Skloot 2015).

The passages below provide examples of how Dr Hartfield misused her knowledge of these agreements to deceive Blaine and his parents, and also how these restrictions in combination with her professional ambitions catalysed her decision to illegally detain Blaine.

‘Blaine held up the jacket and backed towards the door. “Not my problem, Doc. Besides, you don’t own me.”

She held up a form and tapped one of the points. “Actually, as I was just explaining, technically you belong to this research institute. Not that you heard a word I said while you were browsing social media sites on your phone.”” p. 1

'Where were Professor Ramer's research notes? Had he left incomplete records, if any? That just didn't seem like Ramer's style.

According to the usual IP agreements, the lab books had to be kept at the Institute or by a designated authority directly associated with the project. Surely someone had to have them. *Was that someone Melissa?*

He thought it unlikely. Ramer wouldn't have been so careless as to let his notes fall into the hands of his overambitious former PhD student and now number one rival, Melissa Hartfield.' p. 55

'Melissa laughed bitterly. "Essentially they fund what's required to track the progress of the gene therapy recipients and transfer any particular directives. I fill out the progress reports. It's a commercial-in-confidence thing.'" p. 138

"So was it legal?"

"Most certainly! Melissa just didn't know what it was and she was desperate to find out. What she didn't know, she fabricated to save face! Unbeknownst to her, directives and information passed between us via the funding body. The details of the procedure were, and still are, restricted by commercial-in-confidence agreements and the Government.'" p. 182

Activity

- Discuss some of the benefits and disadvantages of IP agreements.
- Reference *The Immortal Life of Henrietta Lacks* by Rebecca Skloot and read associated information (Skloot 2015: <http://rebeccaskloot.com/the-immortal-life>) with the students. Discuss the relationship between IP rights and bioethics.
- Reflect and discuss: Who owns the rights to Blaine's DNA? Should we be allowed to patent genes or living cells?

Euthanasia:

Euthanasia is a current topic that has been debated at the highest levels of government in many Australian states and at a national level, especially in relation to the aged or terminally ill (Australian Human Rights Commission 1996). Internationally there has been much controversy over young adults who have elected for 'assisted suicide', for example the recent Brittany Maynard case (Bever 2014). Some European countries have also extended euthanasia of the disabled or terminally ill to include children (Miller 2014; Smith-Spark & Magnay 2014). (It would be reasonable to categorise 'post-birth abortion' as child euthanasia.)

Many arguments are presented when a choice is made to take another human life. (In this context we are talking outside of wartime conflict.) A common justification is to end suffering. Yet, much inspiration has been drawn throughout history by people who have suffered or even overcome terminal health conditions or severe physical disabilities (see activity below). From our aged we can also draw much wisdom about life, society and ourselves that would otherwise be lost to younger generations.

There are alternatives to euthanasia that deserve recognition when debating this matter. For example, in aged care, programmes have been developed on the ethos of providing

dignity and respect (such as State based 'Dignity in Care' programmes), including recognising each individual's value and history. Although a potentially challenging position for a health carer, it can be a rewarding experience.

Below are some relevant excerpts from the novel.

'He'd been told his condition had first been diagnosed as a ten month old. His birth mother had been advised he should be "terminated". Of course, the more politically correct term was DNR, "do not resuscitate". Euthanasia had been approved. Essentially the directive was to let nature take its course—with a little bit of help from the medical profession.

But was that the truth?' pp. 23-24

'But she also needed him to finish what they'd started with Blaine. *Poor kid. Maybe we should have overdosed him when we had the chance.*' p. 28

"You can't do that forever! Besides, it won't help anyway! Nature has determined he should die! You can't stop it!"

He ignored her.

Melissa reached out to shove Eddie's shoulder. "I said, we need to dump him!" p. 177

Activity

- Discuss the following question as a class:
 - Do you think we can learn from the challenges and suffering of others? (Consider Nick Vujjic (www.lifewithoutlimbs.org) who would have likely been aborted under today's medical protocols in many first-world countries.)
- Have students define and contrast passive and active euthanasia (undertake online research if required).
- Discuss: Is there a circumstance, outside of war, when taking the life of another person may be considered acceptable?

Homelessness:

According to Homelessness Australia (2012), on any given night one out of every 200 people are homeless, and based on the most recent census, approximately 25% of these people are youth (12-25 years of age). Homelessness is a significant and often invisible challenge facing today's young people. Although Blaine isn't technically homeless, he still feels he cannot safely live at home and thus has to consider alternative options, such as living on the streets or Sophie's offer for him to 'couch surf' at her place.

There are many reasons for unstable living arrangements, and people in these situations often face similar challenges to Blaine: poor personal hygiene, inadequate rest through unsuitable or unsafe sleeping arrangements, insufficient finances and personal vulnerability. Unstable housing can lead to restricted life choices through incomplete or interrupted education, financial pressures, poor mental and physical health, anxiety, discrimination and substance abuse (Australian Institute of Health and Welfare 2015) and other challenges. Relevant excerpts are included below.

'Blaine knew he stank. Even though it was winter, the Queensland sun shone brightly and he'd worked up a sweat when escaping. This was made worse by the musty smell of his unlaundered clothes and the fact it had been over twenty-four hours since he'd last showered. It hadn't occurred to him to request deodorant while being held at ARI.' p. 65

"You shouldn't do drugs, kid."

Blaine lifted his head to find the drunken man leaning over him. He recoiled as a cloud of foul breath wheezed into his face. The man's bloodshot eyes seemed to sink back in his sallow face as he reached down and tugged on Blaine's arm.

"You take the bench, kid."

The man's strength was unexpected, given his state. Blaine found himself unceremoniously hauled off the ground and dumped onto the still-warm seat. The man coughed so hard he nearly choked, but he seemed to recover once he'd sat down on another bench a short distance away. After that he pretty much left Blaine alone, except to spread a putrid-smelling, weather-worn blanket over him. Though the stench nearly made him sick, the warmth seeped into Blaine's body.

Finally his shivering eased.' pp. 104-105

'Blaine went to the basin, shrugged off his jacket and placed it on the benchtop beside the sink. Glancing back, he knew he'd never dare tell his parents he'd slept in a toilet cubicle. His father's hygiene expectations would be shattered. No doubt they'd want to bathe him in disinfectant and burn his clothes.' p. 141

Activity

- Have the students consider what factors might contribute to unstable living arrangements and discuss how this could impact their lives.
- Discuss ways in which youth homelessness could be addressed as a social issue. If possible, provide reliable evidence to support these ideas.

Memories:

In life our experiences are captured through the full sensory spectrum. For this reason a particular aroma, song, setting or even colour may be an instant reminder of a certain experience, time, person or place. When you have a positive or negative experience, associations are formed between these sensory triggers. This can contribute to particular environments, actions, emotions and events feeling 'right' or 'comfortable' (and likewise: 'wrong' and 'uncomfortable'). These powerful drivers can have a strong influence on our decision making and actions in a given circumstance, leading to both positive and negative life choices.

For Blaine, we read how certain sounds, places and aromas have an instant connection for him. (Such as memories of Jett linked to ice cream.) Even Dr Hartfield recognised the power of positive experiences in locating Blaine after his escape.

'He closed his eyes, inhaled deeply and listened. He could hear faint sounds from some equipment nearby. Familiar sounds. He tried to identify them.

Dad's work ... Blaine's dad was his company's hygiene specialist and there was a quality assurance lab near his office. Many times Blaine's wheelchair had been parked in the corner of this father's office during those pre-gene therapy years. He'd grown accustomed to those distant laboratory sounds – sounds just like the ones he was hearing now.' p. 17

'Another deep breath perfused his lungs with mid-note geranium and vanilla, under which swelled a rich base with woody undertones ... He inhaled again. *Patchouli?* It was all he could do to stop the tear that dotted the corner of his eye. He was certain he could smell his mother's signature perfume.

Wishful thinking. The tear slid down his face, but he crushed it into his skin with his palm. He was nearly eighteen, not a cry-baby preschooler!' p. 19

'Melissa shrugged. "Blaine won't be going far." Silently she banked on the predictability of a displaced young man in an upended world finding his way to a familiar location peopled with fond memories.' p. 91

Activity

- Have the students read the excerpts above. Ask them to think of a positive event or person in their life and write down two or three sights, smells, sounds or textures they immediately associate with those memories.

4. CURRICULUM TOPIC – LANGUAGE AND LITERACY

4.1 Writing Style, Genre and Structure

- *Integrate* is a modern day, fictional narrative written in third person for a young adult audience.
- Blaine, the main protagonist, is nearly eighteen and this is reflected in the uncomplicated, modern, age-appropriate dialogue and language used in the text.
- Sentences are generally shorter and simply structured for easy reading and accessible meaning.
 - Exceptions to this are scenes involving antagonist Dr Melissa Hartfield, and ultimate ally Professor Ramer, where scientific terminology and more complex sentence structure (and dialogue) are employed.
 - These features reflect the community and scientific persons these characters routinely communicate with, but are also used as tools depicting Dr Hartfield's perceived sense of superiority over Blaine and other characters in the story.

- Primarily Blaine’s point of view (PoV) is used throughout the narrative, but shifts in PoV are interspersed throughout the work to enable greater insight into the thoughts and motives of other key characters.
- Students may construct meaning from the text on themes including disability and intelligence, issues specific to teens, values, beliefs and perceptions of what determines success. As the plot develops, students may identify and reflect on conflicting perspectives of key characters as these themes are revealed.
- *Integrate’s* storyline is fast-paced and supported by uncomplicated sentence structure and dialogue, and deliberately short paragraphing and chapter lengths. Key shifts (reduction) in pace have been used to enable heightened intimacy and insight with characters in select scenes.
- This novel has been categorised as a technical thriller. Numerous elements lend themselves to suspense in the written narrative. By focussing on key aspects of the storytelling, suspense has been developed by a number of methods, including:
 - Heightened sensory elements. Example: Chapter 31, second half of scene 1, pp.158-159
 - Making the protagonist vulnerable, while maintaining his strength and character. Example: Chapter 20, second scene, pp. 105-109
 - Shifting emotions within a scene. Example: Chapter 26, last part of scene 2, pp. 138-139
 - Controlling/changing pace. Examples: Chapter 6, third scene, pp. 29-30; Chapter 34, pp. 171-174
 - Suggesting or foreshadowing an event. Example: Chapter 17, second scene, pp. 93-94
 - Making an already complicated solution even harder to resolve (upping the stakes). Example: Chapter 21, pp. 110-115
 - Push the reader towards a certain conclusion. Example: Chapter 33, scene 1, pp. 167-168
 - Draw on elements of crime fiction – the mystery of the unknown/missing pieces of a puzzle. Example: Chapter 24, scene 1, p. 124
 - Make the story unpredictable in a way that is credible. Example: Chapter 32, scene 1, pp. 163-164
 - Page turners at the end of chapters and scenes. Example: End of chapter 20, pp. 109
 - Give a satisfactory ending. Example: Chapter 37, third scene, pp. 188-192

4.2 Use of Language in Style: Literary Devices and Constructedness of Text

- Literary devices used in text include:

- Metaphor – Examples: Chapter 6, p. 29 ‘... the dark hound of death paddled up to pull him further away from the shore ...’; Chapter 31, p. 158 ‘... The voice was an annoying mosquito in his ear.’
- Simile – Examples: Chapter 2, p. 5 ‘... But after only a few steps his knees felt like chocolate melting in the sun ...’; Chapter 31, p. 157 ‘... Scenes, like washed-out shadows, flicked across his mind ...’ and p. 159 ‘... The aroma filled him like thirst-quenching water ...’; Chapter 33, p. 167 ‘... Weakness dragged at him like a wet blanket ...’ and p. 170 ‘... Thoughts rammed through her head like a free-swinging wrecking ball ...’
- Internal monologue – Example: Chapter 4, pp. 16-19
- Point of view (PoV) – Primarily Blaine’s, but at times this shifts to other key characters for insight into their inner thoughts. Example: Chapter 10, pp. 48-55
- Strong Verbs – Chapter 28, p.142 ‘... statements of admirations tumbling after him ...’ and p. 146 ‘... aspirations crashed in a pile ...’; Chapter 35, p. 179 ‘The young man’s voice chased after her.’
- Narrative Discourse – In modes of discourse, *Integrate* is categorised as a narrative.
 - Within this work there are two instances where use has been made of media reports:
 - ◆ Chapter 21, first scene, pp. 110-111; Chapter 25, first scene, pp. 129-130
 - From this students could:
 - ◆ Examine and contrast the writing in these media excerpts to other portions of text for textural and structural variation, including word selection, frequency of conjunction usage, sentence and paragraphing, organising subject matter and conveying information
 - ◆ Construct their own account of events and compare this to the information contained in (or omitted from) the reports
- Inference – In chapters one to five we see Dr Hartfield building a picture for Blaine from which he draws logical assumptions about his situation. Only as the story progresses and we are presented with other facts relating to Dr Hartfield, do we realise she has misrepresented herself as an ally and assumed power in the form of ‘expert’ to which she has little claim.
 - Students could also consider modality when studying interactions between Dr Hartfield, Blaine and other key characters engaging with the Chief Scientist, identifying specific words she uses to imply degrees of certainty in her communications.

- Protagonist – The main protagonist is 18 year old Blaine Colton
- Antagonist – Dr Melissa Hartfield, director and chief scientist of ARI
- Dramatic Structure – Exposition (Chapters 1 and 2, pp. 1-9) ; Conflict (Chapters 3 to 5, pp. 11-25); Rising action (Chapters 6-33, pp. 26-170); Climax (Chapter 34 and 35, pp. 171-179); Falling action (Chapter 36, pp.180-184); Resolution (Chapter 37, pp. 185-192)
- Back story – Example: Chapter four, pp. 16-19
- Personification – Example: Chapter 10, first part of scene three, p. 51 (the tablet press)
- Onomatopoeia – Examples: p. 33 ‘rasped’; p. 42 ‘yawning’; p. 65 ‘honk’; p. 158 ‘skittled’
- Dialogue and Speech tags – The dialogue of *Integrate* is stylised for flow, meaning and pace. Preference is given to action beats for speaker identification, with speech tag usage restricted where possible. Examples: Chapter 17, first page of first scene, p. 90; Chapter 28, pp. 128-147
- Conflict – Conflict is introduced from the start of the story and continually develops throughout the work between Blaine and his parents, the researchers holding him captive and even internally (within himself), persisting to the final chapter where Blaine is forced to contend with his fears in relation to his and Sophie’s future. Example: Chapter 33, second scene, pp. 168-170
- Foreshadowing – Example: Chapter 17, second scene, pp. 93-94
- Parallelism – Examples: Chapter 12, p. 61 ‘*Can get out, but not in ...*’; Chapter 14, p. 77 ‘If I go down, so do you.’; Chapter 17, p. 93 ‘He didn’t feel like talking and he didn’t feel like listening much either.’
- Repetition – Example: Chapter 31, p. 157 ‘*Would his parents still want him? Would anyone want him?*’; Chapter 37, p.191 ‘She was looking at him, as if waiting for him to do something–say something–to change his mind.’
- Idiomatic and Figurative Language – Example: Chapter 9, p. 46 ‘... Recent addition that cost ten human kidneys to have put in ...’; Chapter 19, p. 100 ‘... we were excited off the chain ...’; Chapter 31, p. 157 ‘... you’d better work a way out of this soon or I’ll be growing grass in a well-kept plot ...’; Chapter 36, p. 180 ‘... I could tell you but then I’d have to kill you ...’

4.3 Narrative Structure

- *Integrate* is a novel with a traditional three act structure: beginning, middle and end.
- The exposition and initial conflict (chapters one to five) are introduced quickly to grab the reader’s attention and establish the rapid pace of the developing plot.

- Rising action is the longest component of *Integrate*, spanning from chapter six to chapter 33.
- Playing off the fast-paced rising action, the climax builds swiftly, peaking in chapter 35.
 - Mechanisms to sustain the rising action include increasing complexity in Blaine’s challenge to distinguish truth from lies, allies from enemies, and acquiring life-saving medication until a sustainable solution to his position can be achieved.
 - Short scenes and chapters, along with key inner monologue work to advance the plot, heighten pace and urgency.
- The falling action runs into a resolution that is realistic but hopeful.
 - As plot queries are resolved, other questions are raised, alerting the reader to the complexity of Blaine’s situation and the sense that it is not a perfect end and there are probably more challenges to come.
- Other relevant structural frameworks:
 - Orientation; Complication; Climax; Resolution
 - [Freytag’s Pyramid](#)

4.4 Setting and Characterisation

Setting:

- This modern story is set in Brisbane, Australia, during the mild, subtropical Queensland winter. Scenes play out against a range of versatile backdrops, including the CBD, Kangaroo Point and the vibrant cultural hub around the South Bank precinct, which also depicts Australian’s love for the outdoor lifestyle.
- A strong sense of place is established in the novel, with familiar sites and locations referenced throughout. Characters experience their environment through the full sensory spectrum, and the influence of these experiences upon a given character’s thoughts, actions and emotions becomes evident to the reader, in conjunction with the impact the characters have upon each respective setting.
- Examples of setting influencing a character’s actions and emotions:
 - Chapter 4, pp. 16-19: The sterility, restriction and repetition of the observation room are as equally disempowering to Blaine as the claimed authorities forcing his life to be held in limbo. Blaine’s thoughts play against the ‘whiteness’ of the ‘fishbowl’ in which he’s trapped, exposing his emotional vulnerability and the need to clutch at anything familiar, even if only his memories. Yet, this also adds to his sense of determination for working out an escape plan.
 - Chapter 12, scenes 2 and 3, pp. 62-66: The CBD is painted as busy, impersonal, ‘faceless’, crowd crushed, with security levels that make Blaine

feel threatened. In contrast, the Botanical Gardens seems serene, keeping the confronting bustle of the city at a distance as Blaine is wrapped in winter sunshine.

- Chapter 18, pp. 95-97: The power and comfort of the South Bank setting and its link to fond, familiar memories, contrasts Blaine's struggle to gain sufficient warmth from his physical environment.
- Chapter 20, pp. 105-109: The night-time setting adds suspense as Blaine is confronted by a drunken man who attempts to help him, then wakes to an artificially lit, practically abandoned train station, with the eyes of an armed stranger upon him. Responses in this chapter are largely influenced by the time and darkened backdrop against which the sequence of events occurs, impacting the assumptions of characters in the scene in relation to Blaine's presence and intentions.
- Chapter 29, pp. 148-151: Blaine's sense of isolation is reinforced by the darkness of night, the absence of pedestrians in contrast to the busy traffic at the end of the street, and his confusion about his intended direction and present location. Evidence of vandalism suggests possible petty crime activity in the area, and the broken pay phone is a physical representation of his disillusionment. He feels cut off from all forms of support, symbolically represented through the phone disconnecting mid-conversation and realisation that he has nothing left, not even Ramer's Cure.

Characterisation:

- Main characters in a story can be defined through their speech, gestures, body language, physical appearance, inner thoughts, and actions and reactions driven by attitude, motivators, values and beliefs. Character maps or profiles can be drawn based on these elements. For example:
 - Blaine Colton: 18 year old male; Mitochondrial Disease survivor; successful gene therapy recipient; life has never been 'normal' due to illness; adoptee; dark, slightly curly hair; slightly blemished complexion; lean, athletic build; can run fast; health conscious; likes Honey Buzz yoghurt; mature for age; fairly laid back; values his newfound freedom; wants to be seen as strong and independent; speaks like a typical teen; resourceful; persistent; often puts hands in pockets when uncertain; values his relationship with his parents, but is conflicted by questions about his own identity; best friends are Jett and Sophie Faraday; Blaine likes Sophie (a lot) and when she's around he cares more about his looks.
 - Elements of Blaine's physical appearance change when he's on the run from ARI (dirtiness of hair, general hygiene, physical capacity, etc). It could be

valuable for students to compare the impact of changing circumstance on a given character and how this modifies the character's traits (physical and emotional). Ask whether these changes are transient, or can they become long-term?

- Impressions readers form about characters should enable them to ultimately identify: key desire/s; values and primary motivators; how each character perceives their goal/s can be achieved and the main hindrance to their success in this process. Further, if these desires are either met or denied, the respective actions will ultimately lead to a consequence.
 - Students should be encouraged to identify these elements for the main characters in the novel. For example:
 - Dr Hartfield desires professional recognition that exceeds Professor Ramer's honours, and in keeping with her ideology of 'the ends justify the means' and a general lack of value for human life, is willing to use others even to the point of professional misconduct on a criminal scale. Her own actions become her greatest barrier to success when her allies turn against her, and consequently she is arrested and imprisoned.
 - It is important to note that little of this information is gained solely from physical descriptions, and students should be encouraged to actively link what traits led them to draw the conclusions they have about each character.
- Names of characters are a critical part of their identity, either strengthening or undermining their role in the story. For example: Would the story still work if Dr Hartfield's character was named Dotti Bubble?
 - The main characters in the novel are:
 - Blaine Colton; Dr Melissa Hartfield; Dr Edward (Eddie) Jonick; Sophie Faraday; Mrs Belinda Colton (Blaine's mother); Professor Ramer
 - Before reading, students could be provided with a list of the main characters and, based solely on their names (and titles), develop a profile for each character. Have them then reflect on the significance of a character's name.
- Dialogue in conjunction with the above attributes serves to inform readers of each character's education level, age, health, vulnerabilities and positions on key themes, and should be congruent with key desires and each character's actions.
 - For example: Chapter 17, first scene, pp. 91-92: Dr Hartfield deliberately changes her response to Dr Jonick in order to manipulate him. This conflicts with her previous behaviour and verbal exchanges with him, which causes Dr Jonick to respond with suspicion.

- All characters, whether round or flat, should be consistent and believable. This may be explored by students as they develop character profiles or maps and compare these profiles with particular scenes, actions and statements.

4.5 Motifs and Symbols

Ticks for Hope:

- This symbol not only provides a tangible count of the positives in Blaine’s situation, it represents the family culture and fundamental values by which he was raised.
- The ‘ticks for hope’ pre-date his gene therapy and difficult rehabilitation to his present circumstances. This serves as a reminder of his (and the reader’s) ability to make active choices even in negative circumstances, his determination to see positives in the face of impossible situations, and the decision to not fall victim to the unexpected.
- ‘Hope ticks’ remain a consistent connection between Blaine and his adoptive parents, even when his doubts seem to be destroying any confidence he has in them. No matter how disillusioned he becomes, the ticks remain in his thoughts and act as a figurative landmark on his journey home.
- The ticks for hope also represent an overarching optimism throughout the story.

5. CURRICULUM TOPIC – SCIENCE

5.1 Science as a Human Endeavour

- **Bioethics**
 - Bodies such as the Office of Gene Technology Regulation (OGTR) and internal institutional committees and procedures have been established to ensure ethical practice for investigative processes relating to humans and animals. Such regulating bodies are alluded to in the novel, with the importance of ethical dealings and the implications of breaches and unethical conduct demonstrated as the storyline unfolds.
 - Have students research the government bodies that oversee such dealings to gain a better understanding of how gene technology is regulated in Australia.
 - Students can search the novel for key scientific and medical terminology and discover more about the technology referenced throughout the story. Some examples are provided below (note: there may be additional references to some terms throughout the text):
 - Heritable p. 189
 - Avirulent p. 6
 - Mutation p. 40
 - Genome p. 14

- Mitochondrial DNA p. 40
- Gene therapy p. 2
- Viral vector p. 23
- DNA p. 6
- Wild-type (DNA) p. 6
- GMO (genetically modified organism) p. 1
- Ganglion p. 14
- Expression p. 182 (of genes)
- Metabolites p. 6
- Pathogenic metabolic by-products p.182
- Serology p. 14
- Virus-like particles p. 6
- Sequencing p. 182
- Seizure p. 13
- Mitochondrial Disease p. 40
- Inert p. 178
- Immunohistochemistry p. 14
- Hypothalamus p. 183
- Biohazard p. 23
- Have students research and discuss potential ethical implications and long-term outcomes of the recently proposed (and approved in the UK) '[three-parent-baby](#)' cure for Mitochondrial Disease (Donovan 2013, Gallagher 2015). (Encourage students to include mitochondrial function, mitochondrial DNA replication and copy number regulation in their research, and consider how this knowledge might inform potential implications of the technology.)

- **The Use and Influence of Science**

- *Integrate* is built on a scientific framework with gene therapy central to the plot.
- The use of scientific research for good is demonstrated, along with the potential for misapplication of scientific knowledge and authority.
- The story relates specifically to experimental science seeking a cure for Mitochondrial Disease, exploring the restrictions this illness places on individuals and their families, whilst enabling insight into how such advances could radically change the lives of sufferers.
- The interdependence of members of the scientific community for the exchange of meaningful and accurate knowledge and research advancement, including across disciplines, is demonstrated.

- **Science Inquiry Skills**

- Information relating to Blaine’s condition and circumstances is revealed throughout the novel, which the reader and characters must determine to be true or false.
- Methods of gauging the accuracy and reliability of information can be considered and reflection made on the experiences, influences and biases we apply when examining information. This could be extrapolated to the reporting, assessment and application of scientific findings.
 - Students can consider how information/facts might be tested to determine validity and reliable interpretation. (Consider evidence-based approaches for drawing valid conclusions.)
 - How might a conflict of interest (such as Dr Hartfield’s selfish interest in Blaine) impact this process? Where does integrity fit in this process?
- Ask the students to undertake (write up) a brief review of literature of Mitochondrial Disease to gain a better understanding of the disease, identifying:
 - History of Mitochondrial Disease
 - Mechanisms of disease and symptoms
 - What is known and what is not
 - Cures (or potential cures), including gene-based technologies
 - Future directions for further research
- Have the students compare their findings with the information conveyed in the novel.
 - Can they identify what is fact and what is fictionally constructed on the premise of ‘What if science could?’

7. QUESTIONS FOR DISCUSSION

Before Reading:

- Have the students read the back-cover blurb and write a brief account of what they think *Integrate* is about and what type of story it is.

Chapter 1

1. Do you know what regulating body/ies Dr Hartfield might be referencing in relation to Blaine’s supposed unapproved gene-therapy? If not, find out.
2. What other committees (such as ethics committees) or organisations may be involved in the approval process for undertaking research like that done by Professor Ramer? Why do you think these bodies are important?

Chapter 2

1. Do you feel Dr Hartfield has the right to hold Blaine at ARI (Advance Research Institute), given her claims his treatment was unapproved? Under what circumstances should parental/guardian rights be overturned?
2. At the end of the chapter (p. 9) Blaine thinks, 'Sophie's a fool's dream anyway.'
 - a. What do you suppose he means?
 - b. What might he be suggesting about himself through this statement?

Chapter 3

1. Blaine feels like he's being treated as a lab rat. (*I'm still here people, and I'm not a lab rat!* p. 13).
 - a. Have you ever been in a situation where others were making decisions that would affect you, and even though you were present, you weren't able to be involved in the conversation?
 - b. How did that make you feel?
2. One of the last things Blaine comprehends is, 'Eliminate. Host.' (p. 14) How might this make him feel knowing he's about to lose consciousness?

Chapter 4

1. In life, a lot of time and energy can be focussed on what's wrong with us and other people, yet despite facing enormous health challenges, we see Blaine using 'ticks for hope' to keep his spirits up. Do you believe there is a connection between someone's resilience to negative circumstances (persisting even after repeated failure) and their ability to see the positives in a situation? Discuss.
2. Name five 'ticks' in your own life.

Chapter 5

1. In the first scene of this chapter, who holds the power in the conversation? Explain.
2. Blaine's inner monologue in the second part of this chapter reveals his uncertainty because of Dr Hartfield's claims about the circumstances surrounding his adoption.
 - a. Do you think she's telling him the truth?
 - b. Why might she share this information with Blaine?

Chapter 6

1. Paralanguage is a term for the vocal accompaniments of speech, such as tone, volume, emphasis, pauses, speed, pitch, noises. List some of the paralanguage used by Dr Hartfield in the first scene of this chapter.
2. Think of a neutral statement (eg: Why are you doing that?). Form pairs or small groups and take turns at saying the neutral statement using different tones (happy, sad, curious, accusatory, etc), but first turn around so your partner/group cannot see your

face. How much meaning do we acquire from paralanguage (ie: without taking cues from facial expressions, gestures or body language)?

Chapter 7

1. Sometimes disability can force individuals to develop a heavy dependence on others, and in some cases individuals may remain reluctant to acquire greater independence, even when circumstances change.
 - a. What does Blaine's persistence and attitude tell you about his home environment and the way his parents raised him, even when he was severely disabled?
 - b. If Blaine had been raised in a different environment/way from that described in your previous response, how do you think he might have reacted differently to his 'containment'?
2. Blaine's unexpected removal from the observation room gains him greater knowledge of his surroundings and increases his determination to escape. Do you feel this could be a turning point in the story? Why?
3. Can you identify key turning points in your own life relating to a decision you were making or even the outcome of a situation?

Chapter 8

1. Dr Hartfield's lies seem to be coming undone.
 - a. Discuss the implications of lying in a situation where you are conveying important information about an event, situation or other people.
 - b. How would you have to manage and protect those untruths to maintain credibility with others involved in the situation, whether that is your peers, family, acquaintances, employer, etc?
2. Who is Dr Hartfield blaming for the things that go wrong?
3. Why do you think our first reaction is often to blame others when things go badly, even when it's largely because of our own decisions/actions?

Chapter 9

1. On p. 45, Blaine overhears Dr Hartfield speaking to his mother, which further confronts him with conflicting sources of information. Read pp. 44 and 45 again and compare the information Blaine has received from Professor Ramer, Dr Hartfield and his parents regarding his condition, treatment, value and life options. Can you identify conflicts?
2. Consider a time you've received conflicting information from different sources. What process or criteria can be used to determine what is true/reliable? (eg: past experiences, relationships, information via the media, feelings, etc)

Chapter 10

1. Based on Blaine's actions, descriptions and inner monologue in the first scene of this chapter, describe how he is feeling.
2. The second and third scenes reveal more of the complexities underlying Eddie and Melissa's relationship.
 - a. Do you think Eddie is acting with integrity? (For this you might have to first define integrity.)
 - b. Identify the PoV (Point of View) character in the second scene. (The scene in Dr Hartfield's office.) How do you know this?

Chapter 11

1. Although Blaine has escaped, he doesn't have money or a mobile phone. How might this complicate his intention to acquire more Ramer's Cure?
2. If someone was to monitor your life (both private and public) what might that information tell them about you?
 - a. Write a list to help build your profile. Include social media connections, financial transactions, locations you frequent, interests, internet sites, social groups, family.
 - b. Do you think someone would be able to predict your most likely 'go to' person and place in the event of you facing a crisis?

Chapter 12

1. Read the first scene of this chapter (pp. 61-62). Given the writing principle 'show, don't tell' list the actions (include tone of speech, word usage, expressions, reactions, etc) that reveal how Dr Hartfield is feeling.
2. Consider the following metaphor '... the chessboard of faceless skyscrapers, fancy hotels, cafes and business dominating the CBD ...' (p. 63). What impression does this form about the setting and how might this affect Blaine's thoughts, feelings and behaviours?
3. What other metaphors can be used to describe a cityscape?

Chapter 13

1. On p. 68 we read about how much it meant to Blaine when his parents trusted him to stay on at Southbank with Sophie and Jett.
 - a. What does it mean to have somebody's trust?
 - b. How does the level of trust influence a relationship?
 - c. How might the fact that Sophie and Jett treated Blaine as a 'mentally-equal, fully able' peer have built trust and shaped their friendship? What does this tell you about Sophie and Jett?

2. There are times when we allow our actions to be dictated by the expectations of others. Do you believe Blaine's suspicions are correct, in that Sophie's and Jett's association with him has been driven more by obligation based on the expectations of others, rather than genuine friendship?

Chapter 14

1. Contrast Dr Hartfield's and Dr Jonick's assumptions and attitude towards Blaine. Why do you think they have formed different positions and what does this tell you about their characters?
2. What motivation might lie behind Dr Hartfield's statement about being the 'me too' scientist? What do you think she means by this?

Chapter 15

1. How is Blaine's homelessness (even if temporary) impacting his life? How might his limited finances and communication options compound this? (A good resource for further reflection is the movie *The Blind Side* (2009).)
2. Consider your reaction if you lost your mobile phone (if you have one) and access to money. How might your response change if:
 - a. you were in unfamiliar surroundings? (Like a different city or even country.)
 - b. you, like Blaine, felt unsafe and believed you couldn't ask for help?
 - c. you had to get somewhere quickly.

Chapter 16

1. On p. 88 in this chapter Blaine again labels the medical researchers 'white coats'. Is this a complimentary or derogatory term? Explain.
2. When we label people we tend to stop seeing individuals, but rather a collective group. How might labelling people change your behaviour (thoughts, emotions, actions) towards them – both positive and negative? Discuss.
3. Think back to Blaine's exchange with Sam (the security guard) when they both referred to the research staff as 'white coats' (p. 46).
 - a. What effect did identifying this common viewpoint have on their response to each other?
 - b. Consider a social setting where you have nothing in common with anyone else. How might having even one person to share your viewpoint change your thoughts, feelings and behaviours? Discuss.

Chapter 17

1. What was your first impression of Dr Jonick?
2. In this chapter we learned a little more of Dr Jonick's back story. Did this information make you reassess your first impression of him?

Chapter 18

1. In paragraphs two and three on p. 96, Blaine's thoughts suggest he feels unworthy of receiving Sophie's affection.
 - a. What does this say about his current sense of self-worth?
 - b. What influence, if any, do you feel his circumstances and the information he's been told by Dr Hartfield has had on this?
2. This chapter has a significant amount of back story. What effect does this have on the pace of the scene?

Chapter 19

1. Sophie has been told misleading information about Blaine by Dr Hartfield (an authority in Sophie's view). Why does Sophie seem to doubt her former experiences and association with Blaine in favour of the details received from Dr Hartfield? Discuss.
2. How do you feel when others circulate untrue information about you? (Gossip, innuendo, etc)
3. Study the dialogue on pp. 99-101.
 - a. Comment on how Sophie and Blaine resolved their misunderstanding. What does this reveal about the level of trust in their relationship?
 - b. How might this scene have ended differently if Sophie had taken offence to Blaine's self-defeating remarks?

Chapter 20

1. Consider the 'drunk' character in this scene.
 - a. If you were in Blaine's position, how might you have felt towards the (supposedly) drunken man?
 - b. This scene occurs at night. Again, if you were in Blaine's shoes, what influence might this fact have on your feelings and response to the drunken man?
2. Why were the witnesses at the railway station incident apparently biased towards assuming Blaine was a troublemaker? What visual and physical features, along with timing (day/night), might have contributed to these assumptions?

Chapter 21

1. Regarding the false accusations made against Blaine, discuss the role the media can play in circulating information to the general public. To what degree might such reports sway public perceptions and opinions (even juries?) on a current topic, person or situation?
2. Think of a current topical issue and identify the general position transferred through the media. Do you agree? Why or why not?

Chapter 22

1. How has the information Blaine's been told by Dr Hartfield impact his confidence in his parents, including their motives and beliefs?
2. Why is Blaine's conflict over his parents' values so significant?
3. What might rejecting his parents' beliefs mean for Blaine's life choices and values?

Chapter 23

1. Why do you think Blaine refuses to give in even with the odds building against him?
2. Can you recount a time or experience when you or a close friend or family member have persisted in the face of insurmountable odds, even when a positive outcome seemed impossible?
3. Consider use of 'strangling' as an adjective for fatigue (p. 121). How exhausted is Blaine feeling?

Chapter 24

1. Can you think of a place or sensory trigger (aroma, sound, etc) that takes you back to a particular event?
2. If Blaine's ongoing symptoms are found to be a consequence of his treatment and flagged as a risk for any further participants in such trials, do you think it is fair for parents to submit their children to such potential cures? Explain.

Chapter 25

1. Dr Hartfield has shared information that conflicts with Sophie's former interactions with Blaine, and Blaine has also claimed the Chief Scientist is threatening his wellbeing. Why then does Sophie still report Blaine's whereabouts when they are searching for him at Southbank?
2. Have you ever heard a negative media report about someone you know personally? Describe how this made you feel about that person. Which did you feel was more reliable – the media report or your prior interactions?

Chapter 26

1. If you had no phone or money and were not within walking distance of your home or other familiar sights, how would you send a message to someone quickly?
2. How is Blaine feeling in this chapter? Demonstrate how you know this by listing actions, dialogue, expressions and any other indicator from the text that supports your conclusion.

Chapter 27

1. This chapter reveals a little more of Dr Jonick's back story, presenting an image that doesn't match his previous behaviour and decisions. Modifying action to present a certain image is termed 'Impression Management'. This is something we all do at times,

often for valid reasons (for example, dressing and speaking in a certain way for an important meeting), but sometimes these modifications can become incongruent with our true self. Given what we know about Dr Jonick, what reasons (emotions, past experiences, goals) might have caused him to act the way he has?

2. Reasons people modify their behaviour (speech, actions, dress, tastes, etc) in given circumstances can include: to suit an occasion (eg: formal vs informal); to be socially appropriate; to gain popularity; to be perceived in a particular light (intelligent, clown, callous, caring); to hide hurts; to feel accepted; to gain a certain reaction.
 - Can you think of a situation where you've changed your presentation for a specific reason?
 - What motivated you to do this?
3. Have you ever made a choice to react to an event or situation when you were upset or confused? How well did you think through the consequences of your choices at that time?

Chapter 28

1. What would you assume about an individual if you found them asleep in a toilet with evidence of needle usage? Why?
 - a. What other explanation/s might there be for finding someone in such a state?
2. Blaine's reaction to the paramedics is initially quite defensive. Can you recount a situation where you reacted defensively? Why did you react that way?
3. Read p. 143 and note the internal monologue.
 - a. How does the internal monologue complement the scene?
 - b. Did you feel this enabled greater insight into Blaine's thoughts and emotions?
4. Imagine this scene was written from Gary's PoV. Provide examples (relevant to the scene) of what you imagine his internal monologue might sound like.

Chapter 29

1. When Blaine is phoning his mother, the extended period it takes for her to answer triggers a barrage of negative thoughts and fears in his mind.
 - a. Write a list of his fears.
 - b. Label them as reasonable or unreasonable. Explain your decisions.
2. It is not uncommon for people to think the worst in a situation where they don't have all the information they feel they need. Why do you think this is? Discuss.

Chapter 30

1. Can you recall a situation where someone attacked the reputation of another person to make themselves look better? Is this ever okay? Explain

2. Think about Dr Jonick's claim that one positive outcome (Blaine) equated a successful project in relation to the research that developed Blaine's treatment (p. 155). How do we measure the success or value of research that directly impacts human life?
3. Would you be willing to stand up for a cause, principle or belief you considered important if it risked your reputation, career prospects or being seen as weird? Have you ever done this?

Chapter 31

1. People often experience clarity about their beliefs, values and faith when facing life and death situations.
 - a. Discuss the influence of Blaine's present circumstances and health on his reflections at the start of this chapter.
 - b. In a life and death situation, consider what might be your 'point of desperation' response.
2. List the reasons why you believe no one approached or assisted Blaine when he was collapsed at the phone booth. Consider how you might respond if you were an observer in similar circumstances. For extended reflection read the incident of [Delmae Barton](#) (AAP & Welch 2006).

Chapter 32

1. Blaine's mother has just been given a negative report about her son.
 - a. Read about her response on pp. 159-162.
 - b. Does her reaction seem consistent with what you've known of her character from previous scenes? Explain.
 - c. Discuss why you think she's responding in that way.
2. When we read, we form images of scenes and characters in our minds. From the details in this chapter (and those where the characters have been referenced previously), describe the physical appearance of a) Mrs Colton, and b) Jett, as you imagine them. Explain why.

Chapter 33

1. At the end of scene one (p. 168) Blaine concludes that perhaps his life purpose is to die in order to give hope to others. Do you believe death can ever play a positive role in life, especially that of a young person? Discuss.
2. Why do you think Dr Jonick's had a change of heart? List several possible contributing factors and discuss.

Chapter 34

Read the third paragraph on p. 172:

'The set of his jaw told Melissa she'd pushed it too far. She tensed, as if he might strike her ... etc ...'

1. Is this reaction congruent with what we know of Dr Jonick's character? (ie: has he ever, that we know of, physically threatened Dr Hartfield?)
2. What might this information tell you about Dr Hartfield's experience with men?

Chapter 35

1. On p. 176, Dr Jonick reminds Dr Hartfield that she did a medical degree with the goal of sustaining and promoting life.
 - a. Consider this statement in the face of current ethical debates, including issues like abortion (including post-birth), euthanasia, disability, terminal illness, life support, coma and advanced life directives.
 - b. Describe how these practices might present a conflict for a medical practitioner. Discuss.
2. Even though Dr Jonick is unsure of what to do, why do you think he persists despite Dr Hartfield's refusal to instruct him?

Chapter 36

1. How might Blaine feel knowing his intense rehabilitation has been set back by Dr Hartfield's selfish ambition?
2. How important is setting and description in this chapter? What image does it build?

Chapter 37

1. Blaine expresses fears about his and Sophie's relationship, believing he is doing the best thing for her by taking away her choice to become further involved with him. Have you ever had someone make a life decision for you in an attempt to protect you, but you felt you had a right to make that choice yourself? Explain.
2. How might Blaine's betrayal by Dr Hartfield affect his willingness to trust?
 - a. What impact might this have on his relationship with Sophie?
 - b. Do you think this might be contributing to his caution regarding the vulnerability required to form a healthy relationship?
3. When forming a relationship, when is a good time to disclose significant information (like a genetic disorder, illness, fear, etc) to a future partner? When boy meets girl? First date? At the wedding? Discuss.

After Reading

- Upon completing the novel, have the students reflect on their pre-reading predictions about the story was about and compare their original ideas with their post-reading insights.
- How different or similar were their expectations to the actual story? Ask the students to document these reflections and discuss them with their classmates.
- Given the science-based fictional (speculative) elements of the novel, ask the student to consider whether the story was believable.

- Did they have a personal connection to the characters and their experiences? Discuss.
- Was there any particular theme or issue that resonated with them? Explain if comfortable.

8. IN-DEPTH TASKS, ESSAY TOPICS AND ASSIGNMENTS

1. Patterns of Language Choice and Power

In the dialogue on pp. 13-14 between Dr Hartfield and her colleagues, she uses scientific and medical terminology that Blaine (and maybe the reader) may not understand.

Ask the students to consider how this might have made Blaine feel.
(How did it make them feel?)

Psychologists sometimes use the word 'power differential' to describe the authority gap that may exist between individuals. Consider how often people simply take the word of an 'expert' or someone in power because they figure the expert knows more about something than they do. This is not an unreasonable assumption, but there have been instances where members of the general population have formed correct conclusions based on available information, but because their opinion differed from an expert they either felt it was invalid or it was discredited in the public sector.

Power is commonly described in accordance with French and Raven's six forms of power. These are:

- Coercive Power
- Reward Power
- Legitimate Power
- Referent Power
- Expert Power
- Informational Power

To understand these more fully read: [French and Raven's Forms of Power](#)

Compare the dialogue in the above scene with those listed below:

(When reading these passages, the students could also consider the textual features, modality and structural devices of the language used. For example, repetition, paragraphing, clauses, sentence complexity and conjunctions in both the dialogue and supporting text.)

- pp. 37-39
- pp. 74-78
- pp. 171-174

Ask the students:

- Based on the different power forms, what power do you think Dr Hartfield is exerting in each of the above scenes?

- What does this tell us of her opinion of herself?
- What does it tell us about her opinion of those she is communicating with?
- Considering the above information, write a 500-word response to the following question: Is someone in power always right?

2. Creative Experimentation of Writing Elements

In approximately 1000 words, write either:

- a. A parallel scene to the story (a scene that fits within the events depicted in the novel and could be slotted into the actual story)
- b. A prologue
- c. An epilogue

The new scene must involve at least two key characters, have action that advances the plot, and be relevant and connect tangibly to the storyline.

Ensure the students:

- a. Write from a single PoV
- b. Apply the writing principle of 'show, don't tell'
- c. Employ the five senses
- d. Develop engaging dialogue (but don't overuse speech tags)
- e. Establish a clear sense of place (setting/description) that contributes to the scene
- f. Have characters with behaviours, thoughts and emotions that are consistent with what we know of them.

3. Intervening in Texts: Values, Meaning and Action

Ask the students to read Chapter 35. Have them:

- Identify the values and moral positions of the characters in this scene
- Think about how they might change the message of the scene, or the values and disposition of the characters involved
- Consider how this might influence the character/s actions and the outcome of the scene
- Based on these modified values, ask the students to rewrite the scene and see if they can get the characters to take a separate course of action because of the value shift they have introduced.

4. Literary Devices – Point of View

Form small groups up to five students per group, and within each group have each student select one of the following scenes (a different scene for each student within a group). Have the students read their selected scene and identify the narrative PoV (ie: whose perspective is the scene written from?).

- Chapter 6, scene 1: pp. 26-28
- Chapter 17, scene 1: pp. 90-93
- Chapter 23: pp. 120-123

- Chapter 31, scene 2: pp. 159-162
- Chapter 37, scene 3: pp. 188-192

Relating to their selected scene ask the students:

- Why do you think the author chose that PoV?
- Did you feel this was the character who had the most at stake?

Have each student rewrite their selected scene from a different narrative PoV.

- When they are done have them share their work within the group.
- In the same groups, have the students check each other's work, looking to ensure their classmates haven't 'head hopped' (ie: included details or information the PoV character could not see or know) in their rewritten scene.
- If there are multiple characters, have the students explain why they elected to take the PoV that they have.
- Have the students also proofread each other's work for punctuation, grammar and spelling.

5. Vocabulary Development

Find these words (or a selection from the list below) in the novel.

- Immunohistochemistry p. 14
- Open reading frame (or ORF) p. 23
- Avirulent pp. 6, 13
- Cascade p. 178
- Neuronal p. 181
- Infectious pp. 24, 35, 99, 181, 182
- Exotic pp. 29, 182
- Multi-modal (can also be one word: multimodal) p. 182
- Defective pp. 40, 178, 183, 190
- Metabolite/s pp. 6, 22, 183
- Pathogenic p. 182
- Repressor gene p. 184
- Vector pp. 6, 23, 25
- Elicited p. 182
- Sequence/s p. 23, 178
- Transmission pp. 6, 25

From their own knowledge and the context in which these words are used in the text, have the students write what they think these words mean.

Have them discuss their definitions with their classmates.

Now allow the students to find out the actual meaning of these words and compare this with their own definitions.

How close were they?

6. Summarisation and Narrative Arc

- I. Using succinct language have students write a summary of *Integrate's* storyline, identifying:
 - a. The sequence of key events crucial to plot development
 - b. The five elements of dramatic structure (introduction/exposition, rising action, climax, falling action, resolution)
 - c. Where the summarised events fit within the dramatic structure.

Once students have completed their written summary, have them develop a plot diagram:

- Plot the key events of the novel sequentially in a line across the page
- Above this sequence, draw a rising and falling line to graphically represent the stages of plot (dramatic) structure: Exposition, Conflict, Rising action, Climax, Falling action, Resolution
- Divide the timeline into the 'three acts': Beginning, Middle, End
- Have the students develop an illustrated storyboard representing the plot diagram.

Although an overarching conflict drives the plot, within a story there are numerous smaller rises and falls of action. Revisit the chapters of the novel and ask the students to:

- Identify smaller peaks of rising and falling action
- Mark these 'mini-climaxes' with a second line above their narrative arc plot
- Identify key turning points in the story
- Mark these key turning points on their plot diagram.

- II. Once the students have identified the key turning points in the story, have them:
 - Select one of the key scenes or chapters
 - Consider what might have happened if one of the characters made a different decision or reacted differently
 - Think about what the consequences and outcome/s might have been
 - Rewrite the key turning point (scene or chapter) they have selected based on the character's alternate decision or reaction
 - Project the consequences of this decision or reaction and propose where and how this response might affect the storyline
 - If the story had taken this turn, how might this have affected the other turning points in the story? Discuss.

7. Variation of Structure and Style between Genres

In the final chapter Blaine is reconciled to his parents and they all make their apologies, seemingly re-establishing harmony in their relationships. Ask the class to discuss whether they believe this represents a resolution for Blaine's questions and emotions surrounding his adoption and related issues of identity. Discuss.

Many elements contribute to identity, with family of origin playing a significant role. Closely linked topics include not only adoption, but donor children and step-relationships through blended families. Have the students research current literature (journal articles and reports) and other reliable resources to write a 800-1000 word magazine article on one of the following topics in Australia.

(This exercise could also provide opportunity to identify and apply nominalisation.)

- Adoption
- Donor children
- Blended families

Contrast past and present trends, including likely reasons for changes in statistical shifts, practices, and/or prevalence of the elected topic. Consider potential outcomes for individuals in these situations and identify key themes that arise through literature and resource searches. Based on their findings, highlight potential considerations that may arise in future generations.

Students should use an appropriate writing style based on relevant examples, and the final work should demonstrate sound cohesion. All sourced material should be appropriately referenced.

8. Structure within Genre: Thrilling Techniques

Integrate has been categorised as a technical thriller. In addition to the critical goal of creating a main protagonist readers care about and giving that character a worthy cause or foe with whom to contend, in conjunction with pace and structure, key elements can be used to build suspense in a story. Below is a list of keys (not inclusive) for making a narrative more suspenseful.

Have the students read through this list and see if they can identify these elements in the novel. Ask them to provide examples from the text and explain which suspense-building method their examples relate.

- Focus on key sensory elements (What did the character see, feel, smell, touch, hear?)
- Make the hero vulnerable without undermining the strength of their character
- Shift emotions within a single scene (or even paragraph), building from slight unease to pounding fear
- Control the pace of a scene. (How might this be done? Consider sentence structure and complexity, what might the PoV character be thinking (internal monologue). Will sentences be snappy or detailed and drawn out?)
- Suggest or foreshadow an event (The hint of, 'Could this be what's happened or going to happen?')
- End chapters and scenes with compelling 'page turner' twists
- Make the solution complicated, or if it already is, make it even harder to resolve

- Hone in on particular features that push the reader towards a certain conclusion, without spelling it out. This could be a look, an action, a feature of a place or character, a response. Something that gets the reader guessing
- Draw on elements of crime fiction – the mystery of the unknown/missing pieces of a puzzle
- Make the story unpredictable in a way that is credible (not waking up from a dream)
- Give a satisfactory ending.

Having identified these elements in the novel, ask the students:

- How would they categorise this work?
- To think about an event that gave them an ‘adrenaline rush’. Have them write a short story that uses some of the above techniques to create a sense of mystery or suspense typical of a thriller.

8. ABOUT THE AUTHOR



In her first Young Adult novel, Australian author Adele Jones melds her love of writing with her professional background in science. Her passion for building positive connections with others is evident throughout her written works, which explore issues of social justice, humanity, faith, natural beauty and meaning in life’s journey.

Through her broad personal and career-based interests, she has welcomed diverse engagement opportunities, including science-based student experience and outreach sessions, conference presentations, literary readings and musical performances. A strong believer in embracing life’s journey, she delights in sharing that adventure with others, be that through the pages of a story or engaging in a social or professional context.

With a long standing interest in historical fiction, Adele based her Master’s dissertation on this topic and is soon to release her first novel in this genre. She has also had a variety of poems, short stories, inspirational meditations and magazine articles published. To find out more visit www.adelejonesauthor.com. For author visits contact Rhizapress at info@rhizapress.com.au.

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