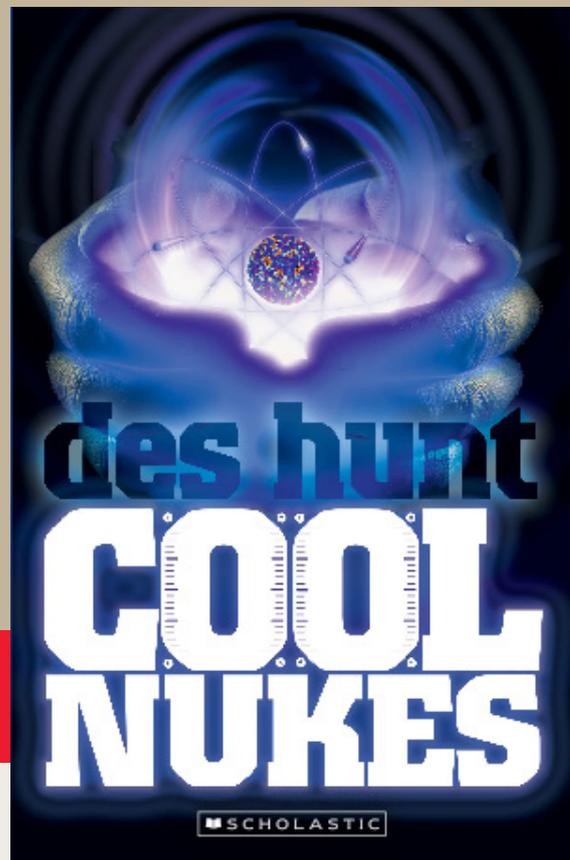


Cool Nukes

By Des Hunt

- Reading • Writing • Science
- Visual Literacy • Critical Thinking



About the Book

Cool Nukes is an action-packed, science-based adventure story likely to appeal to children between nine and thirteen years. The main character is thirteen-year-old Max. He and his classmates, Cleo and Jensen (or Jian Xin), are particularly gifted in science and maths. At the beginning of the story, Max and Jensen are attending a maths tutorial with Professor Mayhew, who is acting strangely, as if he thinks someone is after him. He does, however, manage to tell them the history of scientific research into cold fusion and its discredited reputation. Soon after that, the professor's laboratory blows up, and Max rescues the professor from the flames. Even more bizarrely, the professor then goes missing, and is presumed drowned. Max, Jensen and Cleo realise that the professor is in hiding when some unusual gifts appear in their letterboxes. They eventually work out that Professor Mayhew and their science teacher, Ms Beale, have discovered how to achieve cold fusion and want the teens to produce it. The professor cannot tell them directly what to do, however, as Dr Abbot, an unscrupulous scientist, is after the information so that he can claim the glory and become rich. What's more, a loan shark and his vicious thugs are also involved. The teenagers must produce the machine and present it at the upcoming ExpoFest without Dr Abbot getting hold of the information and without being harmed in the process. There is also another problem: Dr Abbot is one of the judges and is determined to have their entry disqualified. Many exciting events unfold, until the story reaches its dramatic conclusion and the book finishes on a positive note.

About the Author

Des Hunt lives at Matarangi on the Coromandel Peninsula. A widely respected figure in New Zealand educational circles, Des was a teacher for more than forty years before retiring from the classroom in 2006. Some years ago he made the transition from writing textbooks for secondary students to writing novels for younger readers, and he has been shortlisted for the New Zealand children's book awards four times. Des's novels maintain his lifelong aim of fostering young peoples' natural interest in the science of their surroundings. He has now authored 14 books in this genre.

Writing Style

Cool Nukes is a 286-page novel set in Hamilton, New Zealand. It is written in the third person from the perspective of Max, the main character. Other characters discuss the events that happen outside of Max's direct experience, informing the readers at the same time. Des Hunt uses ample direct speech, cliff-hangers and action-filled descriptions to create a fast-moving pace. Along the way, many crises build and are resolved as the characters attempt to solve the biggest problem of them all: creating cold fusion and ensuring its invention is released to the world in a way that will benefit all. While most of the novel has a light-hearted tone, some serious topics are broached, such as bullying, animal abuse, workplace corruption and ethical decision-making. The tension created by these subject areas is relieved with plenty of humorous events, including several situations involving bodily processes such as flatulence.



Shared Learning and Discussion Points

ASK YOUR STUDENTS:

- Look at the front cover. What is being held in the cupped hands? What do the lines on the letters 'O' remind you of? How might these things relate to the title? What might this book be about?
- Now read the text on the back cover. What do you think the book is about now? Who are the main characters?
- Read the excerpt from the book on page 1. Does it make complete sense, or do you need to read on to understand it fully? Why do you think this text was placed here?
- Read the author's note on pages 5 and 6. Why were Pons and Fleischmann disgraced? What is cold fusion? Why would its discovery be so important to the world?
- What is the 'poo and pee detector'? (p.8)
- How old is Max? (p.8)
- In what ways do Max and Jensen act like 'smart-aleck kids'? What does their behaviour tell us about their personalities and their likely strengths at school? (p.9)
- In what ways is the boys' tutor, Professor Mayhew, acting strangely? What is he worried about? Why do you think the author doesn't tell us exactly what's happening? (pp.11–14)
- What was the official reason Professor Mayhew left the university? What reason did Jensen's father give? What was the actual reason? (pp.17–18)
- What is the difference between hot and cold fusion? If cold fusion is so desirable, why don't scientists want to associate their names with the study of it? (pp.18–19)
- Why do the boys think the owners of the van must be professional spies? (p.22)
- Why didn't Jensen want to go home before the normal time? (p.24)
- Why did Max develop such an interest in light absorption? (pp.26–28)
- What realisation does Max make about the blue van? Why does the realisation worry him? (pp.31–32)
- What was good and what was bad about Max's recurring dream? (pp.33–34)
- Why does Max work with Cleo in chemistry? What do you think the advantages and disadvantages of being a ProAx student might be? (pp.35–36)
- What do Max and Cleo argue about? Who do you think is right? Why? (pp.38–39)
- Why was Max disappointed in the innovations area? Why was he upset to find the walking stick device? (pp.40–41)
- What does DART supposedly do? What makes Max think it might not work? What do you think? (pp.42–45)
- What is a coincidence? Do you think the recurrences of the blue van, the Harley-Davidson bike and Dr Abbott's name are coincidences? Why? (p.46)
- What idea has Jensen come up with for the science fair? Why is it better than anything on sale now? (pp.48–49)
- What possible reasons can you think of for the explosion happening? (p.49)
- Who are Max and TC rescuing? Was Max sensible to go into the burning building? Why or why not? (pp.50–51)
- Why are some of Max's replies to the medic in speech marks and others in italics? Which ones does the medic hear? (p.54)
- Why does the policeman need to talk with Max, Jensen and Cleo? (pp.56–57)
- What do we learn about Cleo on page 58? Is she an open-minded or closed-minded person, and is this a good or a bad thing? Why?
- The phrase 'we'll blow them away' has two meanings? What are they? What does Cleo mean when she says, 'Literally'? (p.60)
- Do you think Professor Mayhew went insane and drowned, or might something else be going on? What possibilities can you think of? (pp.62–63)
- What sort of person is Damien? If you were Max, would you have tried to stop Damien from talking so disrespectfully about the professor? Why? (pp.64–65)
- What does Jensen mean when he says Max's comment was an accidental slur? Do you agree? Why? (p.66)
- Why might the professor have given Jensen an e-reader full of maths books? (p.66–67)
- Why might the professor have given Max a computer game? Why didn't he include a letter? (pp.72–73)
- Why did Max's father involve the police? (pp.73–74)
- Why might the professor have wanted to be seen shoplifting and stopping traffic? (pp.76–76)
- What does Max think the message 'cf Max et al' might really mean? What has this got to do with Cleo? (pp.74–78)
- Why might Cleo have been sent a sunflower and a dog whistle? Do you think they are important? Why? (p.80)
- Who do you think is accessing Max's computer? What do you think they want? (pp.83–85)
- Do you think Max is doing the right thing sneaking up on the blue van? Why? (p.86)
- Why was Max's biggest problem the fact that the people in the van knew he had spotted them? (p.88)



- Who might the man in the pinstripe suit be? What does he want? Why might he want it? (pp.90–91)
- Why do you think Cleo told Tony, the reporter, about the gift Professor Mayhew gave her? (pp.94–96)
- Who might the men on the motorcycles be? How could they be involved in the story? (p.98)
- Was Max right to give the motorcyclists the disc? Why? (pp.99–101)
- The author describes Pinstripe, or Dr Carl Abbott, as the professor's nemesis. What does this mean? (p.103)
- Why did Max's father turn off the computer? Was he right to be suspicious? (pp.105–106)
- Why is Max unsure about the professor's message? (pp.128–129)
- What might have caused the blood splatters inside the van? (p.111)
- Thomas Green is a loan shark. What is a loan shark? What job do the bikers do for Thomas Green? (pp.111–112)
- Why do the police think it will be better if they find Professor Mayhew than if the Death Wolves find him? (p.113)
- Do you think Cool Nukes is the professor? Who else could he or she be? (p.115)
- Do you believe that something could be true even if science can't prove it? Why? (p.119)
- What does a water diviner do? (p.120)
- Why does Gran Martin think the press and science world pay so much attention to young scientists? (p.120)
- Do you think they should trust Tony Harris? Why? (p.122)
- What do you think of Tony's plan to avoid the motorbikes? Would you go along with it if you were Max? (p.126)
- What did Max and Cleo discover in the skate park? (pp.130–131)
- What piece of luck allows Max to get away from the bikers in the skate park? (pp.131–134)
- What happened to destroy each of the motorbikes? (pp.135–137)
- What does the author mean by 'more tolerance than camaraderie'? (p.138)
- What mistake did Gran Martin make? What possible problems could her actions create? (pp.139–140)
- How did the professor manage to keep the plan secret in a place where anyone could see it? (p.140)
- How does Tony Harris plan to keep the Death Wolves away? Do you think it will work? (p.143)
- Why was Max annoyed with his mother and sister for making a big fuss about Cleo visiting? (p.144)
- Why might Max find Cleo's presence in his recurring dream so disturbing? (pp.145–146)
- What is a patent? Why is it important for them to make an application? (pp.147–149)
- Why is Tony driving his mother's car? (p.150)
- Do you think it was a good idea for Tony and Max to follow the motorbike? Why? (pp.151–153)
- How might being scared stop Max from doing anything stupid? (p.153)
- Why is the DART sign a clear link between the Death Wolves and Carl Abbott, the scientist? What could this link mean? (p.155)
- How did Max manage to escape the pit bull? (pp.156–157)
- Why was Max feeling grateful to Cleo? (p.161)
- Do you think Max has a right to feel angry with Walt? Why? (p.163)
- Why is Max's dad keen for Max to continue? Do you think he has made a wise decision? Why? (p.164)
- Why do you think Jensen has not been in contact? (p.166)
- What do you think will happen when they turn on the apparatus? (p.169)
- Why is Cleo so upset? What different thoughts might be going through her mind? (pp.170–171)
- Why does Max hit TC? Was it all TC's fault? How could Max ensure he never did it again? (pp.172–174)
- What sort of teacher is Ms Beale? Would you like her to be your teacher? Why? (pp.177–178)
- Cleo had given up on the cold fusion experiment, but now she is working on it again. What thoughts gave her the will to get started again? (p.179)
- Who do you think the intruder who passed wind could be? Is he really a real estate agent? (p.181)
- What does Gran Martin mean by 'a real ripper'? (p.183)
- How was the machine a success? How was it a disappointment? How might they improve it? (p.183)
- Do you think a real cold fusion machine could be made from cookie jars or do you think it could only work if it was made from official scientific equipment? Why? (p.184)
- What was the good news and the bad news from the first round of judging? (pp.185–187)
- Who are the judges? Why is this a big problem for Max and Cleo? (p.189)
- What is plagiarism? Who is the real plagiarist here? (p.193)
- What does Dr Abbott do to lose the respect of the adults in the room? (pp.194–195)



- Would you describe the police raid on the Death Wolves as a success or a failure? (pp.198–199)
- What did the police in Whatawhata actually see? Who do they think was in the car? (p.200)
- Where was Professor Mayhew hiding? (p.203)
- Who might the other half of Cool Nukes be? (p.204)
- What problems did going to the loan shark cause the professor and Ms Beale? (pp.206–207)
- Why does the team need Jensen so badly? (p.208)
- Why had Max been unable to contact Jensen? (p.210)
- How might Jensen be able to help without his father or tutor knowing? (pp.210–212)
- What has happened to TC? How might this affect Max? Do you think he will still enter the ExpoFest? (p.213)
- How did reading about the dogs stolen for dog fighting leave you feeling? How do you think Max felt? (pp.216–220)
- Why do you think Dr Abbott tried to force Max and his father off the road? (pp.222–223)
- Why was Max impolite to Ms Beale? (p.224)
- Use a dictionary to work out what the phrase ‘Convolute proximal phalanges’ might mean. (p.226)
- What do you think might happen when they turn on the newclex? (p.226)
- Why do you think Dr Abbott was wearing such a fancy robe? Why weren’t the other judges impressed? (p.230)
- Why does Dr Abbott want to have Max and Cleo’s entry disqualified? (pp.230–232)
- Why do you think Damien Hadwell-Smith is filming the demonstration? (p.234)
- How would you feel if you were under the sort of pressure Max and Cleo are under? (p.234)
- What sorts of effects do the audience find impressive? Are these effects necessarily the most exciting scientifically? Why? (pp.235–236)
- Are the judges judging fairly, with open minds? Who is and who isn’t? (pp.238–240)
- What did the explosion prove? (p.243)
- What do you think Dr Abbott did while the audience was watching the explosion? (pp.243–244)
- Why did Jensen stay behind and not watch the explosion? Do you think he was really unwell or do you think he had a different plan? (p.245)
- What does Ms Beale think Dr Abbott is up to? Why does she think he’ll get away with it? (p.248)
- What is ether? What can it be used for? (p.251)
- What weapon is Dr Abbott using? Why is it dangerous? (pp.251–252)
- What chemical did Max use to neutralise the acid so it wouldn’t be so harmful? (pp.253–255)
- Why do you think Max rescued Ms Beale before he rescued Cleo? (pp.255–256)
- How much harm do you think Dr Abbott was prepared to cause in order to get the machine? What does this tell us about him? (pp.256–258)
- How did Max feel on the Sunday after the ExpoFest drama? Why did he feel this way? (pp.260–261)
- Why was the newclex disqualified? Why did Dr Chan think it could be good news in the long term? (p.263)
- How did Damien Hadwell-Smith manage to use film footage to make Max’s presentation look like a failure when it was actually a success? (p.263)
- What idea might Max have in mind? (p.268)
- What was Max’s plan? Do you think it was a good idea? Why? (pp.269–271)
- Why do you think the professor was in a grumpy mood? (p.272)
- Why is it important for the video to be seen by as many people as possible? (pp.275–276)
- How do they use Damien’s site to publicise their own video? (pp.275–276)
- Why is giving away the source code important? (p.281)
- Why is the video showing the Newclex Scooter such a big deal for the future of humanity? (pp.283–284)
- Which is more important: the invention of the newclex or Max’s blotch disappearing? Which is more important to Max right now? Why? (pp.285–286)

Activities

ACTIVITY 1: WHAT IS COLD FUSION?

Help your students understand more about the science behind *Cool Nukes*. This could form part of a study on energy. Ensure they understand the enormous significance of such an invention: cheaply created, safe, clean energy; we would no longer be reliant on fossil fuels or other non-renewable resources. Assist your students in using the Internet to find arguments for and against cold fusion experimentation, and then create a pros and cons chart or conduct a class debate.



ACTIVITY 2: WHAT HAPPENED NEXT?

At the end of *Cool Nukes*, Max, Jensen and Cleo have successfully distributed the information about how to create cold fusion to the world, and Max's blotch is disappearing. This is a happy ending, but would Max's life have then gone back to normal? Discuss the possibilities of what might have happened next. Would the teenagers have become famous? Would the consortium have wanted revenge? List possibilities on the white board, and then allow the students to plan and write their own next episode in the story. Encourage them to proofread one another's stories. Then share some of the more varied responses with the whole class.

ACTIVITY 3: OPEN MINDS/CLOSED MINDS

In *Cool Nukes*, the characters discuss how the study of cold fusion is now associated in people's minds with Pons and Fleischmann's disgraced experiment. Taking the topic seriously is considered unscientific. Those that are interested in it are considered crazy or foolish, which puts off others from taking an interest in it or from funding such research.

Discuss this and the concept of open and closed minds with the class. Talk about the dangers of accepting the opinions of others just to fit in or to appear reputable. Ask why ordinarily good people often follow the consensus opinion. Discuss the pros (e.g. fitting in, financial support, acceptance) and the cons (e.g. missing out on potentially exciting and new breakthroughs).

Create a class list of times when students such as themselves might close their minds to new ideas or interesting people just so they can fit in. Divide the students into groups, and ask each group to create a role play in which someone needs to make a decision either to follow the herd or to think for him- or herself. The play should have two alternative endings, showing what happens when the character takes each path. When the groups are ready, they can perform their plays for one another.

ACTIVITY 4: SODIUM BICARBONATE IN ACTION

Max grabs sodium bicarbonate to neutralise the nitric acid Dr Abbott is using as a weapon. Discuss the science behind acid and base reactions at a level suitable for your students. If appropriate, ask them what sodium bicarbonate is more commonly known as (baking soda). Point out that when sodium bicarbonate reacts with an acid, it produces a salt, water and carbon dioxide gas.

Perform experiments in class using sodium bicarbonate and a safe acid, such as vinegar. Such experiments are impressive as they can be used to create fizz or small explosions, blow up balloons or power a toy boat. You can find instructions for these experiments easily online. Try them out on your own first to ensure they are safe and at a suitable level for your students.

ACTIVITY 5: BIAS IN THE MEDIA

Reread page 267 with your students. Discuss how Damien managed to edit his video footage so that Max's presentation looked like a failure when it was actually a success. Then ask the students if they think such biased reporting ever happens in real life. Make a list of possible situations where this might occur, such as on reality TV shows, celebrity gossip shows and even biased news reporting.

As a class, prepare a presentation for a school assembly in which the students encourage others to watch video clips with discernment. They could, for example, plan and produce two videos. One video shows a series of events where the main character is performing a good deed, and the other video is an edited version that makes it look as if the main character is a bad person. The students could show the edited version of their story first and ask questions about the main character's behaviour and motives. This could be followed by the full version, which shows what really happened.

Written by Mary Atkinson