IN THE REALM OF THE HACKERS

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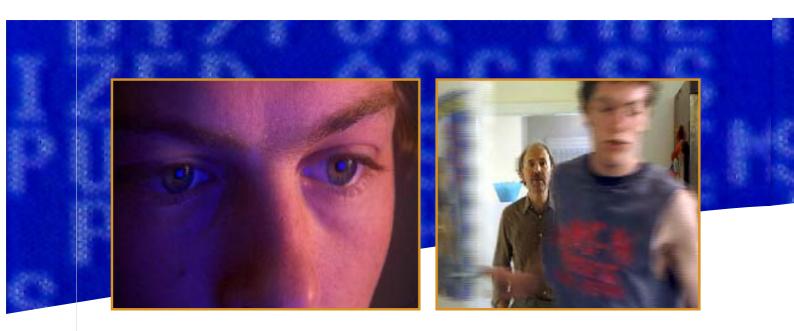
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SYNOPSIS

In the Realm of the Hackers is the story of Australian teenagers who hacked into some of the most secure computer networks in the world. The time is the late 1980s, before there was public access to the internet. Melbourne was then the hub of the computer underground in Australia, if not the world.

The hackers who formed this information underground were not disgruntled computer professionals or organised gangs of criminals. They were disaffected teenagers who used their basic home computers to explore the embryonic internet from inside their locked suburban bedrooms. Two elite hackers known as 'Electron' and 'Phoenix', emerged from this shadowy world, and formed part of an alliance called 'The Realm'. These two combined their skills, stole a restricted computer security list and used it to break into some of the industrial world's most classified and supposedly secure computer systems. This attack was so fast and widespread that people assumed it was an automated program, until Phoenix rang the New York Times to boast. Soon, the US Secret Service and the FBI were on their trail and within months, the Australian Federal Police had raided their homes. They were the first to be tried under Australia's new computer crime legislation.

In the Realm of the Hackers uses a lively combination of interviews and dramatic reconstructions to chart Electron's journey from curious new computer user to an obsessed hacker using the internet up to eighteen hours a day. This style vividly recreates the atmosphere of the time and takes the viewer into the clandestine, risky but exciting world of the computer underground to uncover not simply how these young hackers became involved, but why.

CURRICULUM LINKS

In the Realm of the Hackers could be usefully linked to English, Legal Studies, SOSE/HSIE, Psychology, Counselling, Human Services, Computer Studies/Information Technology, Media Studies, Australian History, Gender Studies and Education. Various education and community groups will also be interested in this topic and the parenting issues associated with it.

The program has been classified M15+ with the consumer advice: low level coarse language. There are also some drug references. It is recommended for mature audiences 15 years and over.

BEFORE WATCHING

- Establish student understanding of the topic by checking what they know about computer hacking and whether they are familiar with the key terms (see below).
- Discuss the title of the program and its various possible connotations as well as obvious meanings, particularly of the word 'realm'. What different shades of meaning can this convey rather than a common word like 'world'? It may help to think of things such as 'in the realm of King Arthur' or 'in the realm of Hades'.

KEY TERMS

These are useful because not everyone is familiar with the language of a particular topic or the language with which we discuss it. It is easy to assume that all students know these. A good way of finding out is to make a word bingo game out of the key terms and use this as a discussion starter. It is also a good vocabulary and spelling extension activity. Add any others you find useful.

Underground, obsession, disaffection, hacker, internet, computer crime, 'handles' insight, identity, stigmatised, cloak and dagger, ambience, AFP, FBI, NASA, legislation, prosecution, learning curve, surveillance technology, capture, data, investigation.

MAKING THE FILM

In order to help students understand how such films come to be made, the following comments from the writer/director Kevin Anderson (KA), presented in interview style, provide useful background to the project. It may inspire budding filmmakers as well as give students an appreciation of the work involved in developing a story idea for a film.

Q: How did you become involved in this project?

KA: I became aware of the story after reading Suelette Dreyfus' book[1] . When I contacted her to talk about a documentary on computer hacking, she warned

me that dealing with computer hackers was 'like trying to herd cats' and that she had spent two and half years working on her book as a result. I was to remember these words as I spent more than three years on the project myself.

Were you an expert in this area?

No. I had to immerse myself in the computer underground and learn terms and concepts I was completely unfamiliar with. Suelette was my main conduit to various members of the underground, past and present.

What attracted you about the idea?

My computer skills are fairly rudimentary, so I guess I was initially attracted to the idea because what hackers did was a complete mystery to me and making films about the unknown is a great way to learn. There were also some interesting themes in the story about teenage disaffection and empowerment, addiction and criminality, as well as the accelerating role of technology in our lives and the ways we deal with it.

What was new about this story?

It represented a number of 'firsts' – the new crime called computer hacking, the first computer crime case to be prosecuted in Australia, the introduction of federal computer crime laws, the establishment of a computer crime unit within the federal police, and the first time computer data had been recorded and used as evidence in Australia. The spine of the story is also based on the development of the internet in Australia. Here was an opportunity to show what role computer hackers played in this and ironically, how they were responsible for the creation of the computer security industry, something that wasn't needed in the early days of the Internet.

How did you develop the script?

It gradually became more focussed on the story of Electron and Phoenix, two Melbourne hackers who were part of the group known as 'The Realm'. We tried to contact both of them but without much success. Eventually, after a year of trying, I got in touch with Electron and we arranged to meet in a café. His initial reluctance gave way to an open discussion that lasted for over four hours and gave me a unique insight into the life of a computer hacker.

Why did you use an actor rather than Electron?

He agreed to participate in the documentary but only if his identity was protected. Initially we were going to disguise his face and voice but we thought that this would make it hard for audiences to become involved in his character. The film was in danger of not being made at all until we decided to use an actor to play Electron in dramatic reconstructions and in the interview situation. But the text for the interview came directly from a transcript of an interview we did with Electron, so the actor is speaking Electron's actual words.

What were Electron's concerns about identity?

Since his arrest and subsequent period of mental illness, Electron has slowly managed to rebuild his life and is a productive member of society working in the IT industry. You can understand that he would be reluctant to reveal his true identity on national television. He hasn't told some people about his past and felt that it might damage his relationships as well as his employment in a sensitive industry. He was also worried that if he revealed past mental instability that this would also result in being stigmatised and misunderstood.

How did you follow the crime aspect of the story?

The involvement of the AFP and their relationship with the US Secret Service and the FBI was an important part of the story. Australian hackers primarily attacked US computer systems 'because that's where the interesting computer systems were' and the US authorities put a lot of pressure on Australian authorities to do something about the Australian hackers. This led to the passing of the first computer crime legislation in June 1989 which gave the AFP the authority they needed to prosecute Australian hackers.

How well prepared were the police at that time to respond?

At first, the Federal Police weren't fully up to speed when it came to computers and computer crime. The culture within the force understood crime as

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something tangible, with a body or stolen money. With computer crime, there was nothing tangible. What crime was being committed? Show me the victim. The AFP members had to embark on a huge learning curve to prosecute the hackers. This involved learning about and developing surveillance technology that allowed them to capture and record the actual data from the hackers' computers and print it out so it could be used in court. To be able to film this part of the story I talked to two former AFP officers who developed this technology, Bill Apro and David Costello.

How did you get the US interviews featured in this program?

After we had finished the Melbourne scenes, we went to the US to film the NASA and other components. This was only a month after the September 11, 2001 terrorist attacks and America felt like a country under siege. We were able to interview Jim Settle, former head of FBI computer crime unit who interacted directly with the AFP during the investigation of The Realm hackers and the subsequent court case. This interview seemed to draw a few more threads of the story together.

ISSUES FOR DISCUSSION AND ACTIVITIES

1. HACKERS AND HACKING

There are thousands of sites related to hacking and its latest form, hacktivism.

http://cafedigital.com/social/

hacktivists.shtml This web-site defines hackers as apolitical, 'Most of their activity is restricted to pointless vandalism and swiping the occasional credit card number. For hackers, the idea has been the challenge of the hack, not necessarily the challenge behind it'. The same site defines hacktivists as 'usually motivated by the need for social change…the message is everything for political activists'.

DISCUSSION

• Use these definitions as the basis for a discussion or debate on where Electron and Phoenix would fit, using the film as evidence.

EXTENSION ACTIVITIES

• Watch the movie *War Games.* Journalist John Markoff says, '*War Games* changed the meaning of the term hacker forever'. How does it define and construct a 'hacker'?
• Pause the video to look at the publicity stills for *War Games*. The still shows a close-up of two faces linked to a screen with the caption 'Is it a game or is it real?'
• The still image presents a good opportunity to discuss the gender issues of computer hacking. There is a male teenager at the keyboard with a girl behind him watching approvingly, her hand is on his shoulder. They are both white Americans. They are looking at a map of the USA on a screen that reflects their faces in the map. The reality of hackers seems to be that they are young male 'loners'. Perhaps this movie offers such

young males the thought that the females they rarely interact with in life really do approve of their actions.
• How does this movie promote the idea that hacking is glamorous?

HANDLES

A 'handle' is the online name used by a hacker. It has two purposes, firstly to shield their identity and secondly to make a statement about how they perceive themselves and their role.

ACTIVITIES

• Ask students to investigate the meanings of names like Electron and Phoenix. What might their choice of names reveal about these young men's self-image?
• Devise a simple anonymous questionnaire to discover the percentages of students with home access to the internet. Whose parents or other family members had access in the 1980s? It may be better to arrange with another class to swap surveys in order to avoid students feeling stigmatised if they don't have home access to the internet.

WHO WERE THE HACKERS?

In the 1980s, access to computers was not widespread as it is today. The profile of hackers at that time generally fitted that of Electron, as summarised below.

ELECTRON

• Male
• Came from a highly educated family

who had access to computers and encouraged his interest from an early age.

- His mother died when he was very young, which affected his emotional development.
- He bought his own computer when he was 16 so he had the financial means to afford it. His modem cost $90. How much would it cost to set up internet access today?
- The only way hackers could get access to the internet then was to break into universities such as Melbourne University. They usually knew students who would let them use their accounts to get started.

WORMS AND VIRUSES

Chapter One of Suelette Dreyfus' book, available online, (see references) provides an account of the effects of a worm on NASA, from a NASA perspective. A worm is a sophisticated computer virus. The worm that attacked NASA's computers was called WANK (Worms Against Nuclear Killers). This appeared on NASA's screens the morning of a space shuttle launch and appeared to have deleted all their files. In fact, the files were untouched. It was, as the acronym suggests, a prank but as the NASA employee says, it 'cost me, my employer, my government a lot of time, money and it scared a lot of people needlessly'.

DISCUSSION

- Identify from the film the probable motivations of the hackers who produced this worm. You will need to listen carefully to the narration explaining that NASA was about to launch the Space Shuttle carrying the Galileo space probe. The concern was that the plutonium power cells would rupture if the shuttle blew up, releasing the deadly plutonium into the atmosphere.
- Discuss the ethics of such actions. Do the ends justify the means? What other forms of protest are available to voice public objections to issues? How effective are the various forms of protest? The hacktivists' web sites will provide ample evidence for researching this question.
- There are a number of sites that help you to identify viruses and hoax viruses. Students could find and assess one of these for its usefulness to users. This is good opportunity to discuss 'netiquette' and responsible internet use. Try www.albion.com/netiquette. This web site has the Core Rules and a Netiquette quiz to test students' knowledge.

SECURITY/TECHNOLOGY ISSUES

Dreyfus says 'hackers are a fact of life, they're not going to go away…and no legislation is going to deter that.'

Former federal policeman and now computer security expert Ken Day says 'the fact nobody's looking at the hacker community is a huge mistake'. This is rapidly changing however and Maher's article in *Australian Personal Computer* is worth using as the basis for research on the growth in awareness and action. He writes about a 'private monitoring station hired by the government to watch its data networks for suspicious activity…hacking is big business' (Maher 2002, p. 59). 'In the US, the government has committed US$880 million to anti-hacking research and other cyber-security programs' (p. 60).

Headlines such as 'UK at risk of cyber-terror' (Norton-Taylor, 2002) show the impact that September 11 has had on attitudes to hacking. The UK set up a unit three years ago called the National Infrastructure Security Coordination Centre, 'to alert government agencies and companies to threats to computer networks and to protect…Britain's critical national infrastructure, or CNI'.

ACTIVITIES

Ask students to:

- Check Australian newspapers online or in hard copy for references to hacking and the new term 'cyber-terror'.
- Brainstorm a list of infrastructures that are reliant on computer networks, e.g. electricity grid, transport and logistics, traffic controls, water supply etc. Groups could conduct research about a chosen system and report back to the class.

2. THE CONTEXT: THE 1980s

Suelette Dreyfus gives various reasons why Melbourne should have been the centre of hacking in the 1980s.

Electron talks about factors such as:

*The spectre of the Cold War
Nightmares about having nuclear missile silos in the back yard
Reagan's Star Wars Proposal
The sense that a nuclear war could break out at any time.*

The 1980s are a long time ago for today's adolescents. Ask them to identify the concerns that they have about the world today.

- Ask them to compare the effects of a major event such as the bringing down of the Berlin Wall with a major event they will remember, such as the September 11 terrorist attacks or the Bali bombings.
- Can they link these concerns with the kinds of movies being released, particularly from the USA, eg *Panic Room* and the spate of war movies?
- What are their visions of possible futures for Planet Earth? For an excellent short account of alternative scenarios refer to the book *Great Transition: the promise and lure of the times ahead.*[2]

3. THE DOCUDRAMA GENRE

DISCUSSION

- How effective do students find this film style for bringing a story to life?

There are various narratives or stories developed within this film, including:

Electron's story
The Federal Police story
Phoenix's story

The hacking story
Electron's father's story

What role does the music play in creating the atmosphere of suspense?

- Most of the music heard in the film was composed especially for the docudrama. Listen to the music over a particular scene and comment on what it sets out to achieve as well as its effectiveness.
- What sort of music does Midnight Oil play and why might it appeal to someone in Electron's position? Listen to some of the band's songs. Why might their lyrics appeal to Electron and his fellow hackers as they are portrayed in the film?
- What music do you play when you are miserable, happy, excited, before going out or playing sport?

4. PARENTING AND PARENTAL RESPONSIBILITIES

Identify key scenes or critical incidents in the film that raise issues of parenting. These could include the following:

PARENTAL RESPONSIBILITY

Watch the scenes in which Electron's father deals with his son's growing obsession with the internet.

KEY SCENE

He brings his son's food on a tray and has to leave it outside the door.

DISCUSSION

- What does this say about their com-

munication at this time?
- What do students think is motivating the actions of father and son in this scene?
- What alternate parental behaviours could students suggest at this point?

Electron was spending 18 hours day and night hacking into computers and his father had to pay the phone bill.

KEY SCENE

Electron's father: So who's going to pay for this?
Electron: Just leave me alone.
Father: I'll confiscate it.
Electron: (slams door)

ACTIVITIES

- Ask students to role-play this scene as it appears and then discuss what each person is doing here. Then ask what each person might have done differently to change the outcome.
- Ask students to script some of their alternative responses and share them with others.
- Students could write a reflective piece about the various approaches to this scene and their responses to them.
- Discuss and compare parental attitudes to discipline issues such as time on computers, phones and mobile phone use. Is there any agreement? Is there any 'right' way? What are students' suggestions for a reasonable agreement about these issues that is fair to all? What would they do if they were their parents? In multicultural societies such as Aus-

tralia, attitudes and values may vary greatly. It is important to establish a relationship of trust and respect in order for any discussions of this kind to be effective.

CRITICAL INCIDENT

Electron and his father had an agreement that he would keep the phone free in the mornings so his father could use it for his work. When relatives complained that they could not reach them, their solution was to tell them to ring in the morning as well.

ACTIVITY

• Discuss the implications of this solution. Who benefits? Who loses? What issues are not being faced in this 'solution'?
• What better solutions can they suggest?
• A school counsellor or professional youth counsellor could be invited as part of an 'expert' session to comment on these suggested solutions.

Electron says of his father, 'I think in some ways he saw computers as a positive thing, and thought that if he's [Electron] spending time on a computer then that was an important skill.'

• Do students agree with Electron's understanding of his father's actions?
• What alternatives can students suggest for dealing more effectively with this situation?

5. RELATIONSHIPS

We see no evidence of these young men having real friendships with their peers. What do friendships need in order to grow? How does a hacker's life work against this?

DISCUSSION

The New York Times journalist John Markoff says of the hackers, 'They...would be more comfortable in front of a keyboard than...in a social setting.'

• What does he mean by this?
• What evidence is there in what Electron says to back this statement up or to refute it?

Electron saw it as a step in his hacking career when he formed a 'relationship' with Phoenix.

• Explore the possible meanings of the word 'relationship'.
• What are the similarities and differences between a face to face relationship and an on-line relationship?
• Are all personal relationships warm and effective?
• Are all on-line relationships cold and simply relationships of convenience? Can there be a best of both worlds?
• 'In order to have a friend you need to be a friend.' What does this mean?

ACTIVITIES

• Collect proverbs about friends from as many cultural traditions as you

can.
• Ask students to identify the qualities of a 'good friend'. Are these different for males and females?
• Ask students to rate themselves on a scale from 1-5 on each of these qualities. They can then form an Action Plan for change to work on qualities they feel they need to improve. This could be for a week or a month with an opportunity to reflect on progress. This activity could be planned in cooperation with a school counsellor or relationships counsellor.

6. DEALING WITH GRIEF AND LOSS

There are many causes of grief and loss, which are a part of life. In any group there may be those, students or others, who have experienced or are experiencing this and any discussion will need to take this into account. A preliminary discussion on appropriate ways of discussing sensitive issues and developing group agreements on behaviours or group rules can be helpful. This video deals with

• the loss of a life partner,
• the loss of a parent through death.

DISCUSSION

• Watch the scenes related to Electron's early life and compare them with the scene in which his father finds out that his wife has died. He closes the door leaving his son alone outside the door.
• What effect might this have had on Electron and his father? What are some effective ways of helping a

child to deal with grief and loss? How do cultures and religions differ in ways of approaching grief and loss?

- How can family and friends provide support in such difficult times?

7. ADDICTION

Electron says 'the realisation that I was addicted to hacking probably first came when I asked my father to hide the modem during exam times…The first thing I normally did after studying for a few hours was start fossicking around like a truffle pig looking for the modem.'

DISCUSSION

- What evidence is there to show that Electron was addicted to hacking? What is the difference between an addiction and a hobby or interest?

ACTIVITIES

- Ask students to brainstorm these and list the differences in two columns so they can compare.
- What are some symptoms of addiction? What can a good friend do when they realise that someone they care about is showing signs of addiction?
- Research any addiction and give an oral report on the findings including the support organisations and advice available to help addicts and their families.
- Watch the movie *A Beautiful Mind*, for a real-life example of obsession and mental instability and how friends and family respond.

8. SUB-CULTURES AND YOUTH

Young people have been criticised for thousands of years for rebellion against authority. One way of resisting authority is to form sub-cultures, with their own rules and codes of behaviour, which can be pro- or anti-social.

- Ask students to identify the aspects of the hacking community that made it a sub-culture in the 1980s. What marks the hackers' culture today and what are some other sub-cultures that students can identify in their present environment? This could include groups such as graffiti writers, BMXers, surfers etc.
- Adolescence can be difficult for males and females. Ask students to research ways that various cultures, including indigenous cultures, have found to be effective for channelling the energy of adolescence. What rites of passage exist?
- Identify favourite past-times or interests, the amount of time spent on them and the perceived benefits of each. Ask students to prepare a five minute talk designed to persuade others to take up their hobby or activity.

9. LAW AND CRIME

Electron: *Breaking into NASA was very exhilarating…It was nice to think that…what we're doing is a bit naughty and perhaps a bit illegal…that makes it look a bit more romantic than it would otherwise…It's just the kick of getting into a system…the challenge… the ego boost you get.*

A NASA employee: *Am I still angry about it? Absolutely. Would I hunt them down if I had more data and authority? No problem.*

Eugene Spafford, security expert: *…one of things that makes hacking possible and so widespread is that the people doing that only see the computer and forget that on the other end there are people, information about people, people who have their own dreams and who can be hurt by what's done.*

- What evidence is there in *In the Realm of the Hackers* to support Spafford's comments?

10. PUNISHMENT AND JUSTICE

The first federal computer crime laws specified stiff penalties for computer crimes ranging from hefty fines to ten years' imprisonment.

- Both Phoenix and Electron received suspended sentences for their activities. The Federal Policeman says, 'I put in three years, all this work and they got this sentence. It's not fair, it's not right.' Do you agree? Did the punishment fit the crime?
- Discuss alternatives to a custodial sentence. Compare justice in this case with mandatory sentencing that resulted in Aboriginal youths of a similar age being jailed for 18 months for stealing biscuits. Discuss the differences between punishment and justice.
- Discuss the judge's possible motivation for not wanting to give these young men a prison sentence.
- In 1998, Australian Skeeve Stevens was sentenced to 18 months jail for stealing credit card numbers via the internet. Can you suggest reasons why his sentence was more severe than the young hackers tried in 1993?

OTHER USEFUL RESOURCES

DOCUMENTARY

The Hacktivists, Ian Walker (director), 2002: An Australian program which addresses the recent and continuing use of the internet by groups acting for various non-government organizations or coalitions against large corporations and global trade agreements. It is the first in a trilogy and also has a study guide. (Available from Ronin Films)

FEATURE FILMS

War Games, Swordfish, The Matrix and *A Beautiful Mind* are movies which may prove useful for further research and activities.

WEB SITES

About Worms: www.osopinion.com/perl/story/14733.html
This is one of a plethora of web sites devoted to worms. The article is entitled 'How computer worms work and why they never die'. It offers simple definitions and explanations.

VIRUSES AND HOAXES

There are many sites to help with this area. www.netease.net/policy/alerts.asp is one with useful information and links.

Hackers: www.pbs.org/wgbh/pages/frontline/shows/hackers/ is a site that looks at who are the hackers and what are the current risks for the internet. It includes interviews with hackers and security experts.

DOCUDRAMA

www.imagesjournal.com/issue01/features/quiz.htm Budding filmmakers will find this site useful. It defines docudrama and gives detailed examples of the genre.

Cybersleuths and Civil Rights
www.guardian.co.uk/internetnews/story/0,7369,416954,00.html
This useful site has excellent definitions and includes a critical discussion of the motivation of the hacktivists as well as some of the measures that governments are beginning to take against them.

New Internationalist Publications Pty Ltd has an award winning web site at https://newint.org/

New Scientist is a weekly magazine which features articles on important aspects of science and technology. It has a website called Planet Science at www.newscientist.com

REFERENCES

William Maher, 'Hacking: the big bucks in industry', *Australian Personal Computer*, April 2002, pp. 58-59.

Richard Norton-Taylor, 'UK at risk of cyber terror', *The Guardian* (UK), August 12, 2002, p. 1.

ENDNOTES
1   Suelette Dreyfus, *Underground: Tales of Hacking, Madness and Obsession on the Electronic Frontier*, at www.underground-book.com
2   Paul Raskin, Tariq Banuri et al. *Great Transition: the promise and lure of the times ahead*, Stockholm Environment Institute, Global Scenario Group, Boston, MA 2002. Available online **www.gsg.org**

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A Film Australia National Interest Program in association with John Moore Productions. Developed and produced with the assistance of Film Victoria. Produced with the assistance of the Australian Broadcasting Corporation.

Writer/Director: Kevin Anderson
Producer: John Moore
Executive Producer: Franco di Chiera
Year: 2003
Duration: 55 minutes

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