

# HOW TO PUT A MAN ON THE MOON IF YOU'RE A KID

How To Plan and Run Successful Projects - No Matter What Age You Are



*Fergus O'Connell*

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*For Ferga*

“Victory awaits him who has everything in order. Luck people call it. Defeat is certain for him who has neglected to take precautions in time - this is called bad luck.”

*The South Pole, Roald Amundsen*

# HOW TO PUT A MAN ON THE MOON IF YOU'RE A KID

**How To Plan and Run Successful Projects - No  
Matter What Age You Are**

## About the Author

**Fergus O'Connell** is one of the world's leading authorities on project management and getting things done in the shortest possible time. *The Sunday Business Post* has described him as having 'more strings to his bow than a Stradivarius'. He has a First in Mathematical Physics and has worked in information technology, software development and general management.

Fergus has spent much of the last thirty years either doing, teaching, learning, writing or thinking about project management. In 1992, he founded ETP ([www.etpint.com](http://www.etpint.com)), which is now one of the world's leading programme and project management companies. His project management method – Structured Project Management / The Ten Steps – has influenced a generation of project managers. In 2003 this method was used to plan and execute the Special Olympics World Games, the world's biggest sporting event that year. His radical methods for shortening projects are in use by a growing band of devotees. His experience covers projects around the world; he has taught project management in Europe, North America, South America and Asia. He holds two patents.

Fergus is the author of twelve books, both fiction and non-fiction:

- *How To Run Successful Projects – The Silver Bullet*, 3<sup>rd</sup> edition [2001]
- *How To Run Successful High-Tech Project-Based Organizations* [1999]
- *How To Run Successful Projects In Web-Time* [2000]
- *Simply Brilliant – The Competitive Advantage of Common Sense*, 3<sup>rd</sup> edition [2008]
- *Call The Swallow* [2002]
- *How To Do A Great Job – And Go Home On Time* [2005]
- *Fast Projects: Project Management When Time Is Short* [2007]
- *How To Get More Done: Seven Days to Achieving More* [2007]
- *Work Less, Achieve More: Great Ideas to Get Your Life Back* [2009]
- *Earn More, Stress Less: How To Attract Wealth Using the Secret Science of Getting Rich* [2010]
- *What You Need To Know About Project Management* [Wiley, 2011]
- *Zero Waste In Business* [Legend Press, 2011].

The first of these, sometimes known simply as 'The Silver Bullet' has become both a bestseller and a classic. *Simply Brilliant* – also a bestseller – was runner-up in the W H Smith Book Awards 2002. *Call The Swallow* was short listed for the 2002 Kerry Ingredients Irish Fiction Prize and nominated for the Hughes & Hughes / Sunday Independent Novel of the Year. His books have been translated into twenty languages.

Fergus has written on project management for *The Sunday Business Post*, *Computer Weekly* and *The Wall Street Journal*. He has lectured on project management at University College Cork, Trinity College Dublin, Bentley College, Boston University, the Michael Smurfit Graduate School of Business and on television for the National Technological University.

He has two children and lives on the south coast of France.

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## How To Use This Book

There are two parts to this book. The first part is about building a plan for your project; the second part is about carrying out the plan.

Each chapter begins with a little quiz to get you thinking about the things that that chapter talks about.

Then the chapter explains what you have to do.

Next, the chapter shows you two examples of applying what you have learned. The first example is for a school project called 'My Favourite Pop Star'. The second example is putting a man on the Moon. Now, obviously the book is too small to contain a complete plan for putting a man on the Moon. However, it shows you pieces of such a plan and how exactly the same method which worked for 'My Favourite Pop Star' works for putting a man on the Moon.

Next – and this is the most important part of each chapter – you have a chance to do what I have taught you on a project of your own.

Finally, at the end of each chapter, there is a summary of the steps you have learned.

If you are using the book on a project for the first time, then the best way to do it is like this. Start at chapter 1, read it and do what it says on your project. Then carry on with chapter 2, chapter 3 and so on – reading it and doing what it says. The result of this will be that when you get to the end of Part 1 (chapters 1 – 8), you will have built a plan for your project. Then Part 2 (chapters 9 – 12) tells you how to carry out that plan.

After a while, you probably won't have to read the chapters any more, you will just go straight to the bit in each chapter where it tells you what to do. And after another while, you probably won't have to read the book at all. You will just know what to do. At that point you'll be a Project Manager – able to run any project. Any project at all. Even putting a man on the Moon. Nice.



## Introduction

Adults are pretty smart, huh?

How else could you explain the Channel Tunnel, for example – a tunnel under the sea that links England and France? Pretty amazing. Took a long time to build and cost a lot of money. Did you know that it was meant to cost \$ 7 billion and ended up costing nearly twice that – \$ 13 billion? Still it must have been very complicated.

Let's take a different one. The US Department of Defense spent a vast amount of money trying to develop a computer system called DIMHRS. [DIMHRS is an acronym. The real name of the system was Defense Integrated Military Human Resources System. An acronym is where you take the first letter of each word and make up a shorter word.] When the project was eventually cancelled, the Secretary of Defense said, 'This project has been a disaster ... I would say that what we've gotten for a half billion dollars is an unpronounceable acronym.' Oops.

Okay, so how about this – a small project? The Irish government decided to introduce electronic voting – to replace voting done with pencil and paper. Now, how difficult can that be? When they eventually packed in, they had spent € 50 million and achieved absolutely nothing. Small? € 50 million? Yeah, that's what I was thinking.

This may or may not come as a surprise to you, but adults mess up projects all the time. Big ones, small ones, complicated ones, simple ones – doesn't matter. Adults have a great ability to mess them up.

And why is this? Well, the answer is very simple.

*They mess them up because they don't know how to run projects.*

Now, why should you care about this? Well, I hope you'll agree the answer is pretty clear. You should care because *you* do projects – in school. And maybe you also do them outside of school. And maybe when you grow up you'll become one of these people who has to build something like a Channel Tunnel or a computerised system to do something or other or maybe you'll be the person who finally brings electronic voting to Ireland.

So should you care? You bet you should.

And that's why I've written this book. Because I'm going to show you how to run projects – how to plan them and make the plans work out successfully. It doesn't matter whether you're trying to put a man on the Moon or doing a project about your favourite pop star - the method for running projects is the same. If you know this method, you can make sure that

- All your projects in school,

- All the projects you do outside of school,
  - All of the projects you have to do when you grow up
- will be successful.

Sounds like it could be useful, huh?

## **Part 1 Planning Your Project**

## Chapter 1 Know what you're trying to do

### Quiz

#### Question

What's the most important thing you have to know when you're starting out a project? Is it:

- (1) Who's going to do all the work?
- (2) What's the project going to cost?
- (3) What exactly are you trying to do?

#### Answer

(3) Obviously! If you don't know what you're trying to do, then how can you do it? (In the early 1990's, the London Stock Exchange ran a project that ran *eleven years* late and cost £ 800 million instead of the £ 6 million they'd originally planned, for precisely this reason - because the people involved didn't know exactly what they were trying to do.)



**'If one does not know to which port one is sailing, no wind is favourable.'**

**Seneca  
Roman philosopher  
(3 BC – 65 AD)**

### ***What You Need To Know***

When you start any project there are three things you need to know. They are:

- What - exactly - are you trying to do?
- How will you know when you're finished?
- Who are the people involved in the project and what are they hoping to get from it?

### ***Why Is This Important?***

Duh! If you don't know exactly what you're trying to do, how will you know when you've done it?

Let's look at our two projects and see how we would answer these three questions.

## ***My Favourite Pop Star***

### **What exactly are we trying to do?**

If your teacher has asked you to do a project on your favourite pop star, then she'd better explain exactly what she means by 'do a project'. What does she want? What - exactly - does your teacher want? When she says 'do a project' what exactly does she want you to hand in? A small book? A poster? Writing? Photographs? Both? Your teacher should tell you but if she doesn't – or doesn't make it clear enough – then ask her. Find out exactly what she wants. Once you know that you're in business – you've answered this question. Let's assume here she says that what she wants is a poster.

### **How will we know when we're finished?**

This one looks like it's pretty easy, doesn't it? It's over when you hand your project in to the teacher, isn't it?

Or is it?

Supposing she says it's no good and that you have to do it again?

Okay, so maybe it's over when she gives you a gold star for it. Then you know you've done the job and you've done it well.

Or, guess what, maybe it's really over when you tell your parents you got that gold star and they give you a treat as a reward. Maybe then you could say the project has *really* been a success. So you decide – pick whichever ending you prefer.

### **Who are the people involved in the project and what are they hoping to get from it?**

So first of all, who are the people involved in this project? Well there's you, your teacher, your parents. Anybody else? Don't think so? Your classmates? Naw, not really. They're all working on their own projects.

And what are they hoping to get from it? It's probably like this:

- You – a gold star and a treat from your parents.
- Your teacher – a good project that deserves a gold star.
- Your parents – that you do a good project so that your teacher is happy and you get a gold star.

So that's probably it really. We have to do a good project that makes our teacher happy, gets us a gold star and a treat from our parents.

Now let's take putting a man on the Moon.

## ***Putting A Man On The Moon***

Even though it's a huge and complicated project, we do exactly the same things as we did for 'My Favourite Pop Star'.

### **What exactly are we trying to do?**

Put a man (or men – or women) on the Moon and bring them back safely to earth. While they're on the Moon there's a whole bunch of things they'll have to do. We'll have to make a list of all these things.

### **How will we know when we're finished?**

This project will be over when the astronauts land safely on Earth and are reunited with their families.

### **Who are the people involved in the project and what are they hoping to get from it?**

Well, there's a big long list of people involved in this project. Let's see if you can come up with some of them. Why don't you try yourself first?

## ***Your Turn***

### **Question**

Try to write down all of the people involved in this project.

### **Answer**

Here's my list. Were some of these people on your list too?

- The astronauts.
- Their families.
- NASA – the organisation that carries out the Moon missions.
- All the companies that work for NASA making things for the Moon mission.
- The American people.

- The rest of mankind.

And what is each of these people hoping to get from the project?

- **The astronauts**
  - Do all the things they were meant to do on their mission and get back safely to their families.
- **Their families**
  - Get their loved ones back safe and sound.
- **NASA – the organisation that carries out the Moon missions**
  - That the astronauts do all of the things on the mission that they were meant to do.
  - That the astronauts get back safely.
- **All the companies that work for NASA making things for the Moon mission**
  - That the stuff they make works properly.
  - That they get paid lots of money for the things they make.
- **The American people & the rest of mankind**
  - That the astronauts get back safely.

So now we know exactly what we have to do. We have to send the astronauts to the Moon and get them back safely. On their mission to the Moon there will be a whole bunch of things they have to do. NASA has to figure all these things out. Once they've done that, then everybody will know exactly what has to be done and we can go on to Step 2 of our method for running projects.

### ***Your Turn***

Now go do this step on your own project. Figure out

- What – exactly – are you trying to do?
- How you will know when you're finished.
- Who the people involved in the project are and what they're hoping to get from it.

## ***Summing up***

### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.



## Chapter 2 Figure out what jobs have to be done to get the project done

### Quiz

#### Question

What do you think is the next step you should take in your project? Is it:

- (1) Figure out what work has to be done?
- (2) Tell people when you'll be finished?
- (3) Go and do research on your project?

#### Answer

(1). If you don't do this then you certainly can't do (2) because you won't know when you'll be finished. You also can't do (3) because you don't know what research has to be done.

**“A goal without a plan is just a wish.”**  
**Antoine de Saint-Exupery**  
**French aviator and writer**  
**(1900 – 1944)**



### **What You Need To Know**

The next thing you have to do on your project is to figure out what jobs have to be done to get the project finished.

### **Why is this important?**

Well, have you ever baked or cooked something? A cake maybe or pasta and a sauce for dinner. If you have you'll know how important it is to have a *recipe*. The recipe tells you what has to be done; it tells you the jobs that have to be done in the order in which they have to be done. Without a recipe your chances of baking the cake or cooking the meal properly go way down. And can you see too that the recipe is a *plan*.

Now I guess the nice thing about baking cakes or cooking meals is that the recipe is already there. The plan already exists. You can go to a cookbook or find a recipe on the Internet. With projects it's a little bit more tricky. With projects, you have to make your own recipe, your own plan. So here's how to do that:

- Figure out the big chunks of work that have to be done.
- Figure out all the little jobs.

Let's look at our two projects and see how we would do both these things.

## ***My Favourite Pop Star***

### **Figure out the big chunks of work that have to be done**

So what would you say are the big chunks of work you're going to have to do? Well, one big chunk of stuff is to write up your project. Okay, so that's one. But before you can do that, what is there? You're right – research. Oh, and give it to the teacher. That comes after writing it up.

Anything else? Can't think of anything? No, me neither. That's about it really. So these are the three big chunks:

1. Research.
2. Write it up.
3. Give it to the teacher.

### **Figure out all the little jobs**

Now, how do we figure out all the little jobs? It's easy. We just use two simple questions. The first is, 'What happens first?' We ask this question once. The other question is, 'What happens next?' We keep asking this until we've built the entire list of jobs. So – here we go. Let's do '1 Research' first.

What happens first? What's the first little job you have to do?

Well, I guess it's to decide who your favourite pop star actually is!

Okay. So then what happens next?

How about 'Decide the kind of information you want to find out about them – stuff like their childhood, family, songs, photographs, music career and so on'?

Okay. What happens next?

I guess it's 'Go on to a computer or go to a library'.

And then? What happens next?

Well, 'Get the stuff – text, pictures, photos.'

And then? Well, I think that does it for '1 Research'.

So here's what that piece of our list of jobs looks like:

#### 1 Research

Decide who your favourite pop star is

Decide what kind of information you want to find out

Go on a computer or go to the library

Get the stuff – text, pictures, photos.

So next we have '2 Write it up'. Again, the same two questions. What happens first?

I guess first you'd better make sure you've got all the materials you need - pens, paper, a big page for the poster, glue, that sort of thing.

What happens next?

It's probably something like 'Decide what sections you want to have and the order you want to have them in'.

And what happens next?

Write the sections.

And what happens next?

Assemble the sections onto the poster.

And what happens next?

I guess just check that it's all looks okay – no spelling mistakes, ink smudges or food spilled on it!

So here is '2 Write it up'.

#### 2 Write it up

Make sure you have all the materials

Decide what sections and the order of the sections

Write the sections

Assemble the sections onto the poster

Check that everything's okay.

And finally, there's '3 Give it to the teacher'.

So here it is all together – the jobs that have to be done to get the ‘My Favourite Pop Star’ project done. (I’ve just numbered them so we can refer to them later.)

#### 1 Research

- (a) Decide who your favourite pop star is
- (b) Decide what kind of information you want to find out
- (c) Go on a computer or go to the library
- (d) Get the stuff – text, pictures, photos.

#### 2 Write it up

- (a) Make sure you have all the materials
- (b) Decide what sections and the order of the sections
- (c) Write the sections
- (d) Assemble the sections onto the poster
- (e) Check that everything’s okay.

#### 3 Give it to the teacher.

Now let’s take putting a man on the Moon.

### ***Putting A Man On The Moon***

Once again - even though it’s a vast and complicated project - we do exactly the same things as we did for ‘My Favourite Pop Star’.

#### **Figure out the big chunks of work that have to be done**

Okay, none of us works for NASA, but let’s see if we can do this.

### ***Your Turn***

#### **Question**

Have a go yourself first and then see how your list compares with mine. Hint: Use the two questions again. Ask ‘What happens first?’ once. Then ask, ‘What happens next?’ until you’ve built the whole list.

#### **Answer**

Here’s my list. I used the two questions to build it.

1. Pick the astronauts.
2. Decide exactly what they will do during the mission to the Moon.

3. Train them to do this stuff.
4. Decide what machines (rockets etc) and equipment (space suits and stuff like that) they will need to go to the Moon.
5. Build these machines and make this equipment.
6. Put the astronauts in the rocket that will take them to the Moon.
7. Launch the rocket.
8. Send it to the Moon.
9. Put it in an orbit around the Moon.
10. Get the astronauts into the machine that will take them down to the surface of the Moon. (If you're interested you can look on the NASA website and you will see that this machine is going to be known as the Altair Lunar Lander.)
11. Land them on the Moon.
12. Get the astronauts to do what they're meant to do on the surface of the Moon.
13. Return them to their spacecraft that is orbiting the Moon.
14. Bring them back to Earth.
15. They touch down.
16. Reunite with their families.

### Figure out all the little jobs

Now obviously we don't have space in this book to write down all the little jobs that have to be done because there will be millions of them. But let's take a tiny piece of this project and see if we can do the little jobs for that. Let's take #12 'Get the astronauts to do what they're meant to do on the surface of the Moon'.

Now again, this is too big a job for us – and anyway we don't know exactly what they're meant to do on the Moon. So let's just take a little piece of #12 – the bit where they get out of the Altair Lunar Lander and take their first step on the surface of the Moon. Let's call that '12 (a) First step on the Moon'.

What happens first? Well first the astronauts have to get all of their gear on. If we assume that they're already in their space suits, then maybe they just have to put on their helmets and hook up their backpacks – the ones that provide their air, water and stuff like that.

And what happens next? Maybe they have to check that all their equipment is working properly.

What happens next? Open the door of the Lunar Lander.

What happens next? First astronaut walks down the ladder onto the surface of the Moon.

What happens next? Then second astronaut. Then third astronaut. Then fourth astronaut. (According to their web site, NASA plans to send four people to the moon on each mission.)

And that's about it really. That gets us four astronauts on the surface of the Moon. So here it is:

12 Get the astronauts to do what they're meant to do on the surface of the Moon

12 (a) First step on the Moon

- I. Put on helmet, backpack etc
- II. Check out all the equipment
- III. Open the door
- IV. First astronaut goes down the ladder onto the Moon
- V. Other three astronauts go down the ladder onto the Moon.

## **Your Turn**

Now go do this step on your own project. Figure out

- The big chunks of work that have to be done.
- All the little jobs.

Use the two questions – ‘What happens first?’ and ‘What happens next?’

## **Summing up**

### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs.

## Chapter 3 Figure out how big all the jobs are

### Quiz

#### Question

Which of the following three jobs is the biggest one?

- (1) This job needs one person working on it for four days to get it finished.
- (2) This job needs two people working on it for two days each to get it finished.
- (3) This job needs four people working on it for a day each to get it finished.

#### Answer

This one's a trick question. These jobs are all the same size. They all need four days work to get them done. In (1) the four days is done by one person; in (2) it's done by two people and in (3) it's done by four people. But it's always just four days work.

### ***What You Need To Know***

You have to figure out how much work is involved in each job on your project.

### ***Why is this important?***

Supposing when you figured out how much work was involved in your project you came up with the answer 5 days. In other words, it's going to take 5 days work to get the project done. But supposing it was Wednesday when you're teacher was giving you the project and she said she wanted it done by Friday. That's only three days – Wednesday (and you've already spent some of that in school), Thursday and Friday (and you'll be spending some of those in school as well). So in this case you're not going to have enough time to get the project done. This is one of the reasons why knowing how much work has to be done is important.

Also, on some projects – unfortunately, not school ones – the person doing the project gets paid to do it. (For example, the guys who built the Channel Tunnel got paid to do it.) If they don't know how much work is involved, then they won't know how many days work to charge for. Remember we said the Tunnel was meant to cost \$ 7 billion and ended up costing \$ 13 billion? This was because somebody didn't figure out properly how much work was involved in each job.

So here's how to do that. You have to work out – or if you can't work it out, then guess – how big each job is. You can measure how big jobs are in days (as we did above) or

hours (as we'll do in the first example below) or minutes or weeks or months or years or any unit of time, really.

I know this sounds very difficult but it isn't really. And it can be interesting. Let's look at our two projects and see how we might go about doing it.

### ***My Favourite Pop Star***

Remember we said that these were the jobs in this project?

<b>JOBS</b>
1 Research
(a) Decide who your favourite pop star is
(b) Decide what kind of information you want to find out
(c) Go on a computer or go to the library
(d) Get the stuff – text, pictures, photos.
2 Write it up
(a) Make sure you have all the materials
(b) Decide what sections and the order of the sections
(c) Write the sections
(d) Assemble the sections onto the poster
(e) Check that everything's okay.
3 Give it to the teacher.

So now let's see if we can figure out how big each job is. I've written out my guesses in the following table and explained how I came up with the numbers.

<b>JOBS</b>	<b>HOW BIG IS THE JOB (in hours)</b>	<b>HOW DID I FIGURE IT OUT?</b>
1 Research		
(a) Decide who your favourite pop star is	0	I'm assuming it takes you almost no time to decide because you already know.
(b) Decide what kind of information you want to find out	$\frac{3}{4}$	My guess is three quarters of an hour
(c) Go on a computer or go to the library	2	Let's say you decide to spend two hours in the library while your Mom is shopping – or two hours online in your own house.
(d) Get the stuff – text, pictures, photos.	0	Let's assume that you're going to take stuff off the



		Internet for your project. Let's assume also that you print off all of this stuff during the two hours you spend at the library or online in your own house. So we call this 0 because this work is included in the 2 hours for the previous job.
2 Write it up		
(a) Make sure you have all the materials	3	Let's say that you're not very organized and you never seem to have all of this stuff when you need it. So let's assume that when you check, you find you need to go buy stuff and so the 3 hours is for a trip into town or to a shopping centre to get all the stationary you need.
(b) Decide what sections and the order of the sections	$\frac{3}{4}$	Can you see that this is related to job 1 (b)? If you did a good job of deciding what kind of information you want, then maybe you already have a fair idea of how you're going to organise this information. Let's guess another 45 minutes ( $\frac{3}{4}$ of an hour) to make a final decision on this.
(c) Write the sections	12	Now here's a problem. We don't know yet how many sections we're going to have, so how can we guess how much work is involved in writing them?  What we do here is we make a <i>guess</i> . We guess how many sections there will be. And, if necessary, we'll make another guess about how much work is involved in each one.  So let's guess six sections and that each section

		takes 2 hours. So that's 12 hours work.
(d) Assemble the sections onto the poster	2	Let's say 2 hours to put it all together.
(e) Check that everything's okay.	½	Let's guess half an hour
3 Give it to the teacher.	0	You'll do it in class
<b>TOTAL</b>	21	

### **Your Turn**

Have a look through my guesses and see what you think. If you disagree then write yours (and how you came up with them) in the blank table below.

<b>JOBS</b>	<b>HOW BIG IS THE JOB (in hours)</b>	<b>HOW DID YOU FIGURE IT OUT?</b>
1 Research		
(a) Decide who your favourite pop star is		
(b) Decide what kind of information you want to find out		
(c) Go on a computer or go to the library		
(d) Get the stuff – text, pictures, photos.		
2 Write it up		
(a) Make sure you have all the materials		
(b) Decide what sections and the order of the sections		

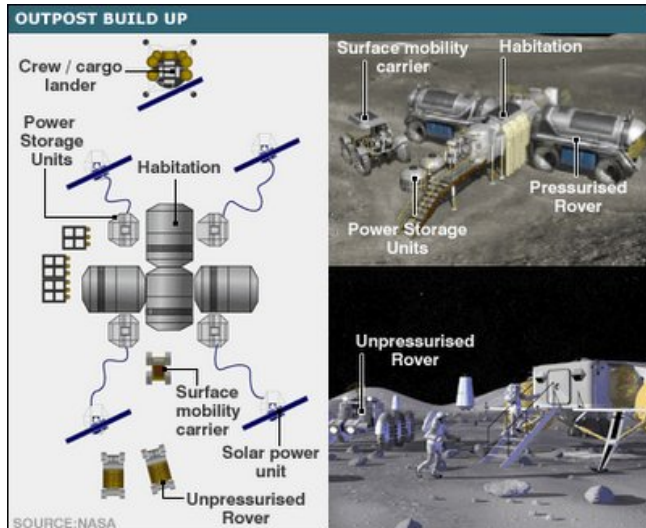
(c) Write the sections		
(d) Assemble the sections onto the poster		
(e) Check that everything's okay.		
3 Give it to the teacher.		
<b>TOTAL</b>		

Now let's take putting a man on the Moon.

### ***Putting A Man On The Moon***

We do it exactly the same way. Let's take the bit of the project that we took in the previous chapter. It was called #12 'Get the astronauts to do what they're meant to do on the surface of the Moon'. And because this was too big a job, we took just a piece of that. We called it '12 (a) First step on the Moon'.

12 Get the astronauts to do what they're meant to do on the surface of the Moon
12 (a) First step on the Moon
I. Put on helmet, backpack etc.
II. Check out all the equipment
III. Open the door
IV. First astronaut goes down the ladder onto the Moon
V. Other three astronauts go down the ladder onto the Moon.



So now let's see if we can figure out how big each job is. I've written out my guesses in the following table and explained how I came up with the numbers. (This time I've measured the jobs in minutes.) They're just my guesses so if you disagree or have your own opinions that's cool.

If we were doing this for real, we could get a few different people together, get each of them to do guesses and then choose from what each person guessed. This is the way it's actually done on big projects when they're done properly.

JOBS	HOW BIG IS THE JOB (in minutes)	HOW DID I FIGURE IT OUT?
12 Get the astronauts to do what they're meant to do on the surface of the Moon		
12 (a) First step on the Moon		
I. Put on helmet, backpack etc	60	It's just a guess but I'm sure the people in NASA know how long this takes. Let's assume it takes fifteen minutes (quarter of an hour) and since each of the four astronauts has to do it, that's four times a quarter of an hour which is one hours work between four people.
II. Check out all the equipment	240	Again I'm sure the people in NASA have a time for this. Let's assume half an hour for each of the four astronauts which is two hours work.
III. Open the door	1	Let's assume that it just takes a minute – to hit a button or turn a lever.
IV. First astronaut goes down the ladder onto the Moon	3	Let's assume it takes 3 minutes. (I'm sure again that NASA knows the real number).

V.	Other three astronauts go down the ladder onto the Moon.	9	And same for the other three astronauts – so 3 minutes each for 3 astronauts is 9 minutes work in total.
<b>TOTAL</b>		313 minutes work	

### ***Your Turn***

Now go do this step on your own project. Figure out how much work is involved in each job on your project.

### ***Summing up***

#### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

#### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs.

#### **3. Figure Out How Big All The Jobs Are**

## Chapter 4 Figure out when those jobs have to be done

### Quiz

#### Question

Which of the following three jobs will take the longest?

- (1) The job is four days work and one person is doing it.
- (2) The job is four days work and two people are doing it.
- (3) The job is four days work and four people are doing it. However, they only work half-days – they work in the mornings but not the afternoons.

#### Answer

It's the first one, isn't it? If the job is four days work and one person is doing it, then it will take four days. For (2), it will take two days – four days work, two people doing it. For (3) I hope you can see that the four people will get two days work done the first day – each of them does half a day's work – and two days work done the second day. So theirs takes two days, same as (2).

### ***What You Need To Know***

You have to figure out when the jobs on your project are going to be done.

### ***Why is this important?***

I think this one is pretty obvious, isn't it?. You've figured out all the stuff that has to be done on your project – you did that in step 2. But now this stuff has to be done – that's the only way the project will get done. So you have to decide when all of the jobs are going to be done.



So here's how to do that. You have to build a little chart or a calendar showing what gets done when. You use the work you've done in the previous chapters to do that. Let's do it for 'My Favourite Pop Star'.

## My Favourite Pop Star

Remember we said that these were the jobs in this project?

JOBS	
1 Research	
(a) Decide who your favourite pop star is	
(b) Decide what kind of information you want to find out	
(c) Go on a computer or go to the library	
(d) Get the stuff – text, pictures, photos.	
2 Write it up	
(a) Make sure you have all the materials	
(b) Decide what sections and the order of the sections	
(c) Write the sections	
(d) Assemble the sections onto the poster	
(e) Check that everything's okay.	
3 Give it to the teacher.	

So now let's draw them on a chart. Let's assume that your teacher gives you the project during class on Monday.

Have a look at the chart in Diagram 1.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
<b>1 Research</b>														
(a) Decide who your favourite pop star is														
(b) Decide what kind of information you need to find out														
(c) Go on a computer or go to the library														
(d) Get the stuff - text, pictures, photos														
<b>2 Write it up</b>														
(a) Make sure you have all the materials														
(b) Decide what sections and the order of the sections														
(c) Write the sections														
(d) Assemble the sections onto the poster														
(e) Check that everything's okay														
<b>3 Give it to the teacher</b>														
<b>Work (in hours)</b>	3/4													

**Diagram 1**

Across the top are the days of the week, starting with Monday. Down the left hand side are the jobs that we've already figured out. I've shaded some of the squares in green. This means that that particular job gets done on that day. So, for example, remember we said that you already knew who your favourite pop star was? So when the teacher gives you the project to do on Monday, you can do that job straight away. So we mark that in green in the box under Monday.

The next job is to ‘Decide what kind of information you want to find out’ and we said that that would take three quarters of an hour. So maybe you decide that you’ll do that on Monday as well. (You decide you’ll do it when you get home as part of your homework). I hope you can see that you can decide to do it any time you like, but that it’s important that you do it soon. This is because the next two jobs

- ‘Go on a computer or go to the library’ and
- ‘Get the stuff – text, pictures, photos’.

both *depend* on the job ‘Decide what kind of information you want to find out’. In other words, neither of these jobs can be done (or even started) until you do ‘Decide what kind of information you want to find out’. So you’d better get that job done as soon as you can. That’s why I’ve put that in on Monday as well.

I’ve also written at the bottom the chart how much work is involved each day. (Remember this is the stuff we figured out in chapter 3?) By writing it here on the chart we can just remind ourselves of how much work we have to do on the project that day. This will make sure that we don’t overload ourselves and have too much to do on any particular day.

Okay, on to the next job. It’s ‘Go on a computer or go to the library’. Let’s say that you don’t have a computer at home so you have to go to the library. You decide to do that on Tuesday. Again, this is another one of those things that it’s best to do as soon as possible – and for the same reason. Until you do this job you won’t be able to do ‘Get the stuff – text, pictures, photos’. In fact, if you remember, we said we would do both of those things at the same time. I’ve put this onto the chart (see diagram 2).

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun
<b>1 Research</b>														
(a) Decide who your favourite pop star is														
(b) Decide what kind of information you need to find out														
(c) Go on a computer or go to the library														
(d) Get the stuff - text, pictures, photos														
<b>2 Write it up</b>														
(a) Make sure you have all the materials														
(b) Decide what sections and the order of the sections														
(c) Write the sections														
(d) Assemble the sections onto the poster														
(e) Check that everything's okay														
<b>3 Give it to the teacher</b>														
<b>Work (in hours)</b>	3/4	2												

**Diagram 2**



Next big job is to do the writing up. Job 2 (a) is to ‘Make sure you have all the materials’. Remember we said in chapter 2 that you probably didn’t have all the materials and so that you were going to go into town or to a shopping centre with your Mom to get them. So let’s say you check with her and you ask can you do it on Wednesday. Let’s say it turns out she’s going shopping that day anyway, so – great – you can get the stuff you need then. That goes in on our chart on Wednesday (diagram 3).

Next comes ‘Decide what sections and the order of the sections’ and there’s three quarters of an hour’s work in it. You can do that on Thursday as shown in diagram 3.

Then you have to write the sections. We guessed six sections and two hours work on each. So let’s say you’ll do 2 hours per day for the next 6 school days – Friday through to the following Friday.

After that you’ve got to ‘Assemble the sections onto the poster’ so you can do that the following Monday. And that day you can also check that everything’s okay – job 2 (e).

Finally then, you can give your project to the teacher on Tuesday.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue		
<b>1 Research</b>																		
(a) Decide who your favourite pop star is	■																	
(b) Decide what kind of information you need to find out	■																	
(c) Go on a computer or go to the library		■																
(d) Get the stuff - text, pictures, photos		■																
<b>2 Write it up</b>																		
(a) Make sure you have all the materials			■															
(b) Decide what sections and the order of the sections			■	■														
(c) Write the sections				■	■	■	■	■	■	■	■	■	■	■				
(d) Assemble the sections onto the poster																	■	■
(e) Check that everything’s okay																	■	■
<b>3 Give it to the teacher</b>																		
<b>Work (in hours)</b>	3/4	2	3	3/4	2			2	2	2	2	2					2 1/2	
																		<b>TOTAL</b>
																		21

Diagram 3

**Your Turn**

Now let me ask you a few questions.

**Question 1**

Our plan shows that it will take two weeks and a day (Monday to Friday, Monday to Friday and Monday) to get the project ready. Now suppose, on that first Monday when the teacher gave the class the project, she said she wanted handed it in by Friday week (the second Friday). Would it be possible to do that – and if so, how?

### Answer

Yes, it would be possible. How? Well, did you come up with any of these ways – and there may be others as well?

1. You could have four sections in your project instead of six.
2. You could work the first weekend – a bad idea, I’m sure you’ll agree – but you could do it if you had to.
3. You could shorten the plan as shown in diagram 4. The things you would do to do that would be:
  - Check on Monday whether you have all the materials and – assuming you don’t – ask your Mom if she wouldn’t mind doing her shopping and getting them for you on Tuesday while you’re at the library.
  - Move the job ‘Decide what sections and the order of the sections’ from Thursday to Monday.
  - If you do both of these things, then you can start writing on Wednesday; six days for the writing, as before; assemble it and check it on Thursday of the second week and hand it in to your teacher on Friday like she asked for.
  - Notice too, that if you wrote say, four or five sections instead of six, than you’d be finished *before* Friday. That’d be nice, wouldn’t it?

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>													
(a) Decide who your favourite pop star is													
(b) Decide what kind of information you need to find out													
(c) Go on a computer or go to the library													
(d) Get the stuff - text, pictures, photos													
<b>2 Write it up</b>													
(a) Make sure you have all the materials													
(b) Decide what sections and the order of the sections													
(c) Write the sections													
(d) Assemble the sections onto the poster													
(e) Check that everything's okay													
<b>3 Give it to the teacher</b>													
													<b>TOTAL</b>
<b>Work (in hours)</b>													
<b>You</b>	1 1/2	2	2	2	2			2	2	2	2 1/2		18
<b>Your Mom</b>		3											3
													21

**Diagram 4**

Now let's take putting a man on the Moon.

### ***Putting A Man On The Moon***

The bit we looked at in the last chapter was called 'First step on the Moon'. It was part of #12 'Get the astronauts to do what they're meant to do on the surface of the Moon'. Here it is again.

12 Get the astronauts to do what they're meant to do on the surface of the Moon
12 (a) First step on the Moon
I. Put on helmet, backpack etc.
II. Check out all the equipment
III. Open the door
IV. First astronaut goes down the ladder onto the Moon
V. Other three astronauts go down the ladder onto the Moon.

Let's figure out what gets done when, for this. And – amazingly - it's actually easier than for 'My Favourite Pop Star'. This is because everything just happens in sequence – one

job after the other. Here it is in diagram 5. And this time I've drawn it using something that draws these kinds of charts for big, adult projects. It may look different but, if you look closely at diagram 5, you'll see that it's exactly the same idea as diagrams 1 – 4 above. The chart is measured out in units of 2 minutes rather than days like it was above. You can also see on the chart that we assume that they're starting at 8 AM and that it takes them nearly an hour to get this piece of the project done.

It may sound amazing to be marking off a plan in minutes but when NASA sends people to the Moon this is exactly what they do. They actually know what each of the astronauts will be doing *every minutes of the mission*. Scary!

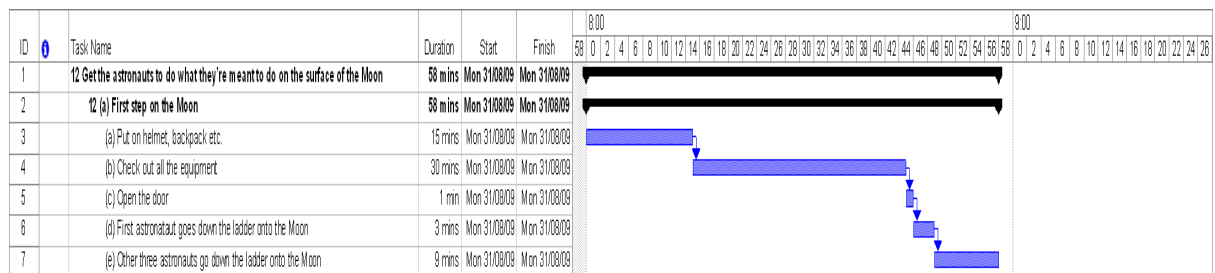


Diagram 5

And here are some notes on how we came up with the figures in diagram 5.

JOB	HOW BIG IS THE JOB (in minutes)	HOW DID I FIGURE IT OUT?	HOW LONG WILL IT TAKE?
12 Get the astronauts to do what they're meant to do on the surface of the Moon			
12 (a) First step on the Moon			
I. Put on helmet, backpack etc	60	It's just a guess but I'm sure the people in NASA know how long this takes. Let's assume it takes fifteen minutes (quarter of an hour) and since each of the four astronauts has to do it, that's four times a quarter of an hour which is one hours work between four	A quarter of an hour – fifteen minutes – because they all do it at the same time.

		people. .	
II. Check out all the equipment	240	Again I'm sure the people in NASA have a time for this. Let's assume half an hour for each of the four astronauts which is two hours work.	Half an hour – thirty minutes – again, because they all do it at the same time.
III. Open the door	1	Let's assume that it just takes a minute – to hit a button or turn a lever.	1 minute
IV. First astronaut goes down the ladder onto the Moon	3	Let's assume it takes 3 minutes. (I'm sure again that NASA knows the real number).	3 minutes
V. Other three astronauts go down the ladder onto the Moon.	9	And same for the other three astronauts – so 3 minutes each for 3 astronauts is 9 minutes work in total.	9 minutes, as they go down the ladder one after the other.
<b>TOTAL</b>	313 minutes work		

## Your Turn

Now go do this step on your own project. Figure out when the jobs have to be done on your project and draw them on a chart like I've shown you.

## Summing up

### 1. Know What You're Trying To Do

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

### 2. Figure Out What Jobs Have To Be Done To Get The Project Finished

- The big chunks of work that have to be done.

- All the little jobs.

**3. Figure Out How Big All The Jobs Are**

**4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

## Chapter 5 Figure out who's going to do the jobs

### Quiz

#### Question

True or false – lots of adult projects get into trouble because there aren't enough people to do all the jobs.

#### Answer

I know this sounds incredible but it's true. You'd have thought adults would be smart enough to realize that jobs don't get done if people don't do them but somehow they're not. Lots of the projects that grown-ups do, get into trouble because there was more work to do than there were people to do the work. So don't fall into this trap when you get older. If there's a hundred day's work to be done there's got to be a hundred day's worth of people to do the work. Don't ever forget it!

### ***What You Need To Know***

You have to figure out who's going to do the jobs on your project.

### ***Why is this important?***

Jobs only get done if people do them! So you've got to find people to do the jobs. To do this, get your chart from the previous step and put somebody's name against each job. When you're doing this, you'll often find that you already know or have a good idea who's going to do each job.

Let's do it for 'My Favourite Pop Star'.

### ***My Favourite Pop Star***

Here in diagram 1 is one of our charts from the previous chapter. (Let's take the one that assumes we have to get the project finished and handed up to the teacher by the second Friday.)



	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>													
(a) Decide who your favourite pop star is	■												
(b) Decide what kind of information you need to find out	■												
(c) Go on a computer or go to the library		■											
(d) Get the stuff - text, pictures, photos		■											
<b>2 Write it up</b>													
(a) Make sure you have all the materials		■											
(b) Decide what sections and the order of the sections	■												
(c) Write the sections			■	■	■			■	■	■			
(d) Assemble the sections onto the poster											■	■	
(e) Check that everything's okay												■	
<b>3 Give it to the teacher</b>												■	
													<b>TOTAL</b>
<b>Work (in hours)</b>													
<b>You</b>	1 1/2	2	2	2	2			2	2	2	2 1/2		18
<b>Your Mom</b>		3											3
													21

**Diagram 1**

So let's put in an extra column saying who's going to do what, and fill that in. Here it is in diagram 2. We've called the extra column 'Who'. And I think it's pretty clear – you're going to all the jobs except for the one where your Mom is going to buy you the materials.

	WHO	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>														
(a) Decide who your favourite pop star is	You	■												
(b) Decide what kind of information you need to find out	You	■												
(c) Go on a computer or go to the library	You		■											
(d) Get the stuff - text, pictures, photos	You		■											
<b>2 Write it up</b>														
(a) Make sure you have all the materials	Mom		■											
(b) Decide what sections and the order of the sections	You	■												
(c) Write the sections	You			■	■	■			■	■	■			
(d) Assemble the sections onto the poster	You											■	■	
(e) Check that everything's okay	You												■	
<b>3 Give it to the teacher</b>													■	
														<b>TOTAL</b>
<b>Work (in hours)</b>														
<b>You</b>		1 1/2	2	2	2	2			2	2	2	###		18
<b>Your Mom</b>			3											3
														21

**Diagram 2**

Easy, huh? Now let's take putting a man on the Moon.

### ***Putting A Man On The Moon***



Here's our chart from the last chapter.



Diagram 3

This time, rather than putting in an extra column, we'll add in the 'Who' by writing it against each job. This is another way you can do it.

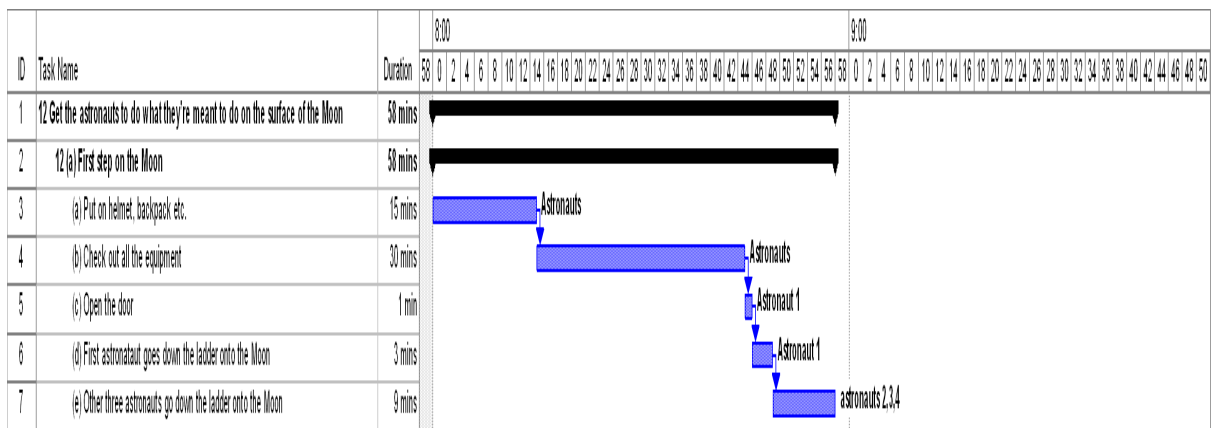


Diagram 4

Simple as that!

### Your Turn

Now go do this step on your own project. Figure out who's going to do what and write it in on your chart.

### Summing up

1. Know What You're Trying To Do
  - o What – exactly – are you trying to do?
  - o How you will know when you're finished?

- Who the people involved in the project are and what they're hoping to get from it.

**2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs

**3. Figure Out How Big All The Jobs Are**

**4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

**5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.



## Chapter 6 Figure out how much the project will cost

### Quiz

#### Question

True or false – adults are pretty good at working out what projects will cost.

#### Answer

Well, *some* adults are pretty good – on *some* kinds of projects. But, in general, adults are not at all good at this. The result is that it is very, very, very common for projects to cost much more than people thought.

### **What You Need To Know**

You have to figure out what your project's going to cost.

### **Why is this important?**

Hey - because it's about money! And money is one of those things that people always want to know about.

It may sound complicated but it's actually really easy. All you have to remember is that:

- Some jobs just involve doing work. Many of the jobs in 'My Favourite Pop Star' are like that.
- Some jobs involve spending money on stuff – for example, in 'My Favourite Pop Star' you have to buy materials.
- Some jobs involve a bit of both.

To figure out what your project is going to cost, the place to start is with what you did in chapter 3 where you worked out how big each job was. Let's take that stuff and let's work out the costs for 'My Favourite Pop Star' first.

### **My Favourite Pop Star**

Here – in diagram 1 - is what we did in chapter 3.

JOBS	HOW BIG IS	HOW DID I FIGURE IT OUT?
------	------------	--------------------------

	THE JOB (in hours)	
1 Research		
(a) Decide who your favourite pop star is	0	I'm assuming it takes you almost no time to decide because you already know.
(b) Decide what kind of information you want to find out	$\frac{3}{4}$	My guess is three quarters of an hour
(c) Go on a computer or go to the library	2	Let's say you decide to spend two hours in the library while your Mom is shopping – or two hours online in your own house.
(d) Get the stuff – text, pictures, photos.	0	Let's assume that you're going to take stuff off the Internet for your project. Let's assume also that you print off all of this stuff during the two hours you spend at the library or online in your own house. So we call this 0 because this work is included in the 2 hours for the previous job.
2 Write it up		
(a) Make sure you have all the materials	3	Let's say that you're not very organized and you never seem to have all of this stuff when you need it. So let's assume that when you check, you find you need to go buy stuff and so the 3 hours is for a trip into town to get all the stationary you need.
(b) Decide what sections and the order of the sections	$\frac{3}{4}$	Can you see that this is related to job 1 (b)? If you did a good job of deciding what kind of information you want, then maybe you already have a fair idea of how you're going to organise this information. Let's guess another 45 minutes ( $\frac{3}{4}$ of an hour) to make a final decision on this.
(c) Write the sections	12	Now here's a problem. We don't know yet how many

		<p>sections we're going to have, so how can we guess how much work is involved in writing them?</p> <p>What we do here is we make a <i>guess</i>. We guess how many sections there will be. And, if necessary, we'll make another guess about how much work is involved in each one.</p> <p>So let's guess six sections and that each section takes 2 hours. So that's 12 hours work.</p>
(d) Assemble the sections onto the poster	2	Let's say 2 hours to put it all together.
(e) Check that everything's okay.	$\frac{1}{2}$	Let's guess half an hour
3 Give it to the teacher.	0	You'll do it in class
<b>TOTAL</b>	<b>21</b>	

**Diagram 1**

As we said, some of the jobs here involve just doing work. Now I know it would be nice if you could charge somebody for the work you're going to do on this project – if you could persuade your parents or your teacher that they should pay you money to do the project. Unfortunately, you probably won't be able to do that. (Though well done if you do. You're obviously going to make your first million before you're eighteen!) For most of you out there, you're going to have to do this work for nothing. So the costs here are going to be pretty easy to work out.

We also said that some jobs would involve spending money on stuff. So how do you figure out the cost of those? Well, it's pretty straightforward as well. The way to think about it is that the costs of a project are a bit like the bill you get in a supermarket when you've been through the checkout and paid for all your stuff. You've seen those bills. They're on a strip of narrow paper from the checkout and they list all the things you've bought and what each of them cost. So you can think of the costs on a project as being like that. You list all the stuff you need and then you put a price on each item.

So to take the example of the materials for the 'My Favourite Pop Star' project, let's say that you decide you need:

- A large sheet of paper to present your project on – this will be the big poster that your teacher is looking for.
- Glue – to attach the pictures you’re going to get off the Internet and the stuff that you’re going to write, to the poster.
- Some colored felt-tip pens for the stuff you’re going to write.

How do you figure out the costs of these? Well, there are all sorts of ways. Go look in a shop. Go check on the Internet. Ask somebody who might know. Look in catalogues or brochures. These are just some of the ways. And if all else fails, well remember – you can always just guess. It may not be very accurate but it will at least give you some idea until you can go check using one of the other, more reliable ways.

So now let’s take diagram 1 and fill in the costs. We’ll put these in an extra column called ‘Cost’. I’ve done mine in Euros because that’s the money I use, but you can use whatever is right for your country. We’ll also add another column - ‘How did we calculate it?’ – to say how we calculated the cost. Here it all is in diagram 2.

<b>JOB</b>	<b>HOW BIG IS THE JOB (in hours)</b>	<b>HOW DID I FIGURE IT OUT?</b>	<b>COST (in Euros)</b>	<b>HOW DID WE CALCULATE IT?</b>
1 Research				
(a) Decide who your favourite pop star is	0	I’m assuming it takes you almost no time to decide because you already know.	0	No work – no cost!
(b) Decide what kind of information you want to find out	$\frac{3}{4}$	My guess is three quarters of an hour	0	Because you can’t really charge anybody for this.
(c) Go on a computer or go to the library	2	Let’s say you decide to spend two hours in the library while your Mom is shopping – or two hours online in your own house.	0	Or this.
(d) Get the stuff – text, pictures, photos.	0	Let’s assume that you’re going to take stuff off the	0	Or this.

		Internet for your project. Let's assume also that you print off all of this stuff during the two hours you spend at the library or online in your own house. So we call this 0 because this work is included in the 2 hours for the previous job.		
<b>2 Write it up</b>				
(a) Make sure you have all the materials	3	Let's say that you're not very organized and you never seem to have all of this stuff when you need it. So let's assume that when you check, you find you need to go buy stuff and so the 3 hours is for a trip into town to get all the stationary you need.	6	Your Mom – kind person that she is – isn't going to charge you for going into town and getting the stuff. However, the stuff is still going to cost money. So remember we said you need a large sheet of paper, glue and felt-tip pens. You could try any of the ways we mentioned above to figure out the costs of these, but for now, let's just use the guessing method. So here we go – large sheet of paper (1 Euro), glue (2 Euros), felt-tip pens (3 Euro). Total 6 Euro.
(b) Decide what sections and the order of the sections	$\frac{3}{4}$	Can you see that this is related to job 1 (b)? If you did a good job of deciding what kind of information you want, then maybe you already have a fair	0	Can't charge for this – it's your work.

		idea of how you're going to organise this information. Let's guess another 45 minutes ( $\frac{3}{4}$ of an hour) to make a final decision on this.		
(c) Write the sections	12	<p>Now here's a problem. We don't know yet how many sections we're going to have, so how can we guess how much work is involved in writing them?</p> <p>What we do here is we make a <i>guess</i>. We guess how many sections there will be. And, if necessary, we'll make another guess about how much work is involved in each one.</p> <p>So let's guess six sections and that each section takes 2 hours. So that's 12 hours work.</p>	0	Or this.
(d) Assemble the sections onto the poster	2	Let's say 2 hours to put it all together.	0	Or this.
(e) Check that everything's okay.	$\frac{1}{2}$	Let's guess half an hour	0	Or this.



3 Give it to the teacher.	0	You'll do it in class	0	Or this
<b>TOTAL</b>	21		6	

**Diagram 2**

And that's all there is to it – it really is as easy as that. Now let's take putting a man on the Moon.

***Putting A Man On The Moon***

We said earlier that:

- Some jobs just involve doing work.
- Some jobs involve spending money on stuff.
- Some jobs involve a bit of both.

Diagram 3 contains the chart from chapter 3 where we worked out how big each job was.

<b>JOBS</b>	<b>HOW BIG IS THE JOB (in minutes)</b>	<b>HOW DID I FIGURE IT OUT?</b>
12 Get the astronauts to do what they're meant to do on the surface of the Moon		
12 (a) First step on the Moon		
I. Put on helmet, backpack etc	60	It's just a guess but I'm sure the people in NASA know how long this takes. Let's assume it takes fifteen minutes (quarter of an hour) and since each of the four astronauts has to do it, that's four times a quarter of an hour which is one hours work between four people. .
II. Check out all the equipment	240	Again I'm sure the people in NASA have a time for this. Let's assume half an hour for each of the four astronauts which is two hours work.
III. Open the door	1	Let's assume that it just takes a minute – to hit a button or turn a lever.
IV. First astronaut goes down the ladder onto	3	Let's assume it takes 3 minutes. (I'm sure again

the Moon		that NASA knows the real number).
V. Other three astronauts go down the ladder onto the Moon.	9	And same for the other three astronauts – so 3 minutes each for 3 astronauts is 9 minutes work in total.
<b>TOTAL</b>	313 minutes work	

**Diagram 3**

We can see pretty quickly that all of the jobs here fall into the third category – they involve doing work and using stuff.

Now obviously the cost of a project like putting a man on the moon is *enormous* and we're not going to have space to do it all here. But let me just show you how – apart from its size – it's no different from 'My Favourite Pop Star'. Let's just take the first job – 'Put on helmet, backpack etc'.

Firstly, there are people doing work. There are the four astronauts, for sure. But there are also people on the ground – at Mission Control, but also around the world in various tracking stations and in other places who make sure that the mission goes safely.

Let's take the astronauts first. To begin with there are their salaries – the wages they are paid. But then there is the cost of all of the stuff they have – space suits, backpacks, boots, the Altair Lunar Lander and so on. It would be a long list to be sure, but we could make such a list. It would be no different from a supermarket checkout bill – just much longer – and more expensive!

Then there are the people on the ground. To figure out what all of these this would cost we would just have to make a list of all of these people. Then we would put in their salaries and also the costs of the places where they work. We would count in stuff like their electricity bill, the cost of their heating or air conditioning, their phone bill, insurance, the computers and telephones they use, the cost of their restaurants or cafeterias and so on. Again it would be a long list but again we could do it. And again it would be just like a supermarket checkout bill. That is how we always we do it. We make a list of exactly what we need and then put prices against each item. And that is how we would figure out the cost of putting a man on the Moon.

***Your Turn***

Now go do this step on your own project. Figure out what it's going to cost.

## **Summing up**

### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs.

### **3. Figure Out How Big All The Jobs Are**

### **4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

### **5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.

### **6. Figure Out How Much The Project Will Cost**

By making a list of exactly what we need and then putting prices against each item.

## Chapter 7 Gotta have a leader

### Quiz

#### Question

Who's the best person to act as leader on a project? Is it:

- (1) Someone who's tall?
- (2) Someone who's good at attention to detail and telling everybody what's going on?
- (3) Someone who's good looking?
- (4) Someone smart – for example, the smartest kid in your class?
- (5) Or the one who's best at sports?
- (6) Or someone who's inspirational and that you would want to follow?
- (7) Or someone whom you admire and want to be like?

#### Answer

Strangely enough, the answer is (2). It's people who don't forget small things and keep everybody involved, are the people who tend to make the best leaders on projects.

### ***What You Need To Know***

Just because you figure out all the work that has to be done and give jobs to people doesn't mean that the project is going to happen. For that you need a leader.

### ***Why is this important?***

Do you like Westerns – cowboy movies? Maybe if you're a guy, you do. If you're a girl, then maybe not so much. Whatever. But even if you don't like them, I'm sure you know cowboy movies and have maybe seen bits of them from time to time. There's a particular type of cowboy movie which is the cattle drive movie. In these movies a bunch of cowboys take a herd of cattle from some place (usually on the Rio Grande somewhere) and drive them to some place like Abilene in Texas or Kansas City. The guy who leads the cattle drive is always known as the 'trail boss'.

The jobs on projects are a bit like cattle in the cattle drive. They need a trail boss to make sure they all get done. Without a trail boss – just like real cattle – they will wander all over the place, get lost, go to places they shouldn't have gone to, stand still, go backwards. You get the idea. Think of an orchestra without a conductor, sheep without a shepherd, an army without a commander.

So that's why we need a leader – to make sure that all of the jobs get done.

### ***My Favourite Pop Star***

I guess that's you! And putting a man on the Moon?



### ***Putting A Man On The Moon***

Well that would be the guy known in NASA as the Flight Director. If you've ever seen the movie, *Apollo 13*, the Flight Director in that movie is a guy called Gene Kranz. (And if you haven't seen that movie, and you're interested in space travel and putting men on the Moon, then you really should. And if you haven't seen that movie, you should anyway – it's a great movie.)

### ***Your Turn***

Now decide who the leader of your project is going to be. It's probably going to be you, I guess, isn't it?

### ***Summing up***

#### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

#### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs

#### **3. Figure Out How Big All The Jobs Are**

#### **4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

#### **5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.

**6. Figure Out How Much The Project Will Cost**

By making a list of exactly what we need and then putting prices against each item.

**7. Gotta Have A Leader**

## Chapter 8 Figure out what to do if things go wrong

### Quiz

#### Question

How likely is it that unexpected things will happen on your project?

- (1) Very likely?
- (2) Very unlikely if you plan it properly?
- (3) Depends on the project.

#### Answer

I think the most correct answer has to be (1). It's true to say that, no matter how carefully you plan your project, unexpected things will happen on it. It's worth remembering too that most of these unexpected things will be *bad* unexpected things. Occasionally you may get a lucky break, but usually when an unexpected thing happens it's going to have a bad effect on your project. It might delay it for example, or cause you to have to put more work than you thought into it. Or cause it to cost more. As for answer (2), planning will certainly help and stop lots of unexpected things from happening. But it won't guarantee that. And answer (3)? Well, I think it's true to say that if you've done a project many times before then unexpected things are less likely to happen. But – in general – unexpected things will *always* happen.

### ***What You Need To Know***

The final thing you have to do to plan your project is to try to figure what could go wrong and what you can do about it.

### ***Why is this important?***

It's important because – as we said earlier – unexpected stuff *does* happen on projects. And – as we've also said earlier – most of it is *bad* unexpected stuff. So we have to be ready for it. Let's show how to do it first for 'My Favourite Pop Star'.

### ***My Favourite Pop Star***



Let's just remind ourselves of our plan. Here it is from chapter 5.

	WHO	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri		
<b>1 Research</b>															
(a) Decide who your favourite pop star is	You	■													
(b) Decide what kind of information you need to find out	You	■													
(c) Go on a computer or go to the library	You		■												
(d) Get the stuff - text, pictures, photos	You		■												
<b>2 Write it up</b>															
(a) Make sure you have all the materials	Mom		■												
(b) Decide what sections and the order of the sections	You	■							■	■	■				
(c) Write the sections	You			■	■	■			■	■	■				
(d) Assemble the sections onto the poster	You											■	■		
(e) Check that everything's okay	You												■		
<b>3 Give it to the teacher</b>													■		
															<b>TOTAL</b>
<b>Work (in hours)</b>															
<b>You</b>		1 1/2	2	2	2	2			2	2	2	###			18
<b>Your Mom</b>			3												3
															21

Diagram 1

Now what could go wrong with this plan? Let's look down the list of jobs and think hard about what could go wrong with each of them. Here's my shot at it. As usual you can decide for yourself.

'1(a) Decide who your favourite pop star is' – hard to think of anything that could go wrong with that. '1(b) Decide what kind of information you need to find out' – or that. '1(c) Go on a computer or go to the library'. Now, this is one that could cause some problems. Suppose you can't get to the library? Or suppose when you get there that there are no computers available? Or that they computers aren't working for some reason? These are all things that could go wrong, so let's stick them on a list.

<b>What Could Go Wrong?</b>
1. Can't get to the library
2. No computers available
3. Computers not working

Diagram 2

These things also apply to the next job '1(d) Get the stuff – text, pictures, photos'. Job 2(a) is 'Make sure you have all the materials'. What happens if your Mom doesn't go into town or forgets the materials or can't get them? More things to go on the list.

<b>What Could Go Wrong?</b>
1. Can't get to the library



2. No computers available
3. Computers not working
4. Mom doesn't go into town
5. Mom forgets materials
6. Mom can't get materials

**Diagram 3**

The remaining jobs in the plan are all to do with getting the work done. Seems to me that the big problems here are:

- Things take longer than expected.
- Can't get interested in the project and so leave things to the last minute.

Maybe you can think of others but let's say that the list in diagram 4 is our list.

<b>What Could Go Wrong?</b>
1. Can't get to the library
2. No computers available
3. Computers not working
4. Mom doesn't go into town
5. Mom forgets materials
6. Mom can't get materials
7. Things take longer than expected
8. Leave things to the last minute

**Diagram 4**

Now for each of these, we need to ask the question, 'how likely is it that this particular thing will happen?' If it isn't very likely, then maybe we don't have to worry about it, whereas if it is, we do. So let's rate 'how likely is it to happen?' on a scale of 1 to 3 where 1 is not very likely, 3 is very likely and 2 is in-between. Here are my scores.

<b>What Could Go Wrong?</b>	<b>How Likely is It?</b>
1. Can't get to the library	1 Let's assume that your Mom has said she will take you and that she always does what she says she will do.
2. No computers available	3 Let's say that they don't have many computers in the library so that there's always a lot of people looking to use them.
3. Computers not working	2 Let's say that you've only seen it happen once before.
4. Mom doesn't go into town	1 She's said she will.

5. Mom forgets materials	1 She always does what she says she will do.
6. Mom can't get materials	1 Your Mom will find a way. She always does.
7. Things take longer than expected	3 Let's say you assume the worst – that everything could take much longer than you expected
8. Leave things to the last minute	3 And hey, maybe this is what you tend to do!

**Diagram 5**

Next we want to ask not, 'how likely is it to happen?' but rather, 'what effect will it have if it does happen?' If the particular thing that we said happens, will it have a big effect or a small effect? Let's use the same scale of 1 to 3, where 1 is 'It will have a small effect', 3 is 'it will have a big effect' and 2 is in-between. Here we go.

<b>What Could Go Wrong?</b>	<b>How Likely is It?</b>	<b>What Effect Will It Have if It Happens?</b>
1. Can't get to the library	1 Let's assume that your Mom has said she will take you and that she always does what she says she will do.	3 If you can't get to the library, you're stuffed, aren't you?
2. No computers available	3 Let's say that they don't have many computers in the library so that there's always a lot of people looking to use them.	3 Similarly. If you can't get a computer you can't do the work to get the project done.
3. Computers not working	2 let's say that you've only seen it happen once.	3 And again.
4. Mom doesn't go into town	1 She's said she will.	3 But if it happened – if she didn't go into town – it would have a big effect.
5. Mom forgets materials	1 She always does what she says she will do.	3 Similarly.
6. Mom can't get materials	1 Your Mom will find a way. She always does.	3 Similarly
7. Things take longer than expected	3 let's say you assume the worst – that everything could take much longer than you expected	2 Would be a problem but you could get over it just by taking the extra time.
8. Leave things to the last minute	3 And hey, maybe this is what you tend to do!	3 Could result in your running out of time and either not being able to do the project at all or not doing it very well.

### Diagram 6

So how can we use all this information? Well, I hope you can see that the things that score high on either ‘How likely is it?’ or ‘What effect will it have?’ or both are the ones we really need to worry about. Let’s look at our scores again – this time, without the notes.

<b>What Could Go Wrong?</b>	<b>How Likely is It?</b>	<b>What Effect Will It Have if It Happens?</b>
1. Can’t get to the library	1	3
2. No computers available	3	3
3. Computers not working	2	3
4. Mom doesn’t go into town	1	3
5. Mom forgets materials	1	3
6. Mom can’t get materials	1	3
7. Things take longer than expected	3	2
8. Leave things to the last minute	3	3

### Diagram 7

And look what happens if we multiply the score for ‘How likely is it?’ by the score for ‘what effect will it have?’

<b>What Could Go Wrong?</b>	<b>How Likely is It?</b>	<b>What Effect Will It Have if It Happens?</b>	<b>How Likely multiplied by What Effect</b>
1. Can’t get to the library	1	3	3
2. No computers available	3	3	9
3. Computers not working	2	3	6
4. Mom doesn’t go into town	1	3	3
5. Mom forgets materials	1	3	3
6. Mom can’t get materials	1	3	3
7. Things take longer than expected	3	2	6
8. Leave things to the last minute	3	3	9

### Diagram 8

We end up with two 9’s (score high on both) and two 6’s (score high on one or the other). These are the things that could cause the biggest problems on our project, so these

are the things we have to worry about. Now, what if anything, can we do about these things? Let's add one final column to our table.

What Could Go Wrong?	How Likely is It?	What Effect Will It Have?	How Likely multiplied by What Effect	What Can We Do?
1. Can't get to the library	1	3	3	
<b>2. No computers available</b>	<b>3</b>	<b>3</b>	<b>9</b>	<b>Phone up in advance and book a computer</b>
<b>3. Computers not working</b>	<b>2</b>	<b>3</b>	<b>6</b>	<b>Come back the next day, Wednesday.</b>
4. Mom doesn't go into town	1	3	3	
5. Mom forgets materials	1	3	3	
6. Mom can't get materials	1	3	3	
<b>7. Things take longer than expected</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>There are at least two things you could do:</b> <ul style="list-style-type: none"> <li>○ <b>Don't write so much</b></li> <li>○ <b>Use the weekends – start early (over the first weekend) or use the second weekend if you run into problems</b></li> </ul>
<b>8. Leave things to the last minute</b>	<b>3</b>	<b>3</b>	<b>9</b>	<b>Follow the plan and do what the plan says every day. A little bit every day is better than a great big panic at the end.</b>

**Diagram 9**

So now let's look at our plan again. Diagram 10 is what it looked like originally.



than expected				things you could do: <ul style="list-style-type: none"> <li>○ Don't write so much</li> <li>○ Use the weekends – start early (over the first weekend) or use the second weekend if you run into problems</li> </ul>
3. Leave things to the last minute	3	3	9	Follow the plan and do what the plan says every day. A little bit every day is better than a great big panic at the end.

**Diagram 12**

That's our plan.

### ***Putting A Man On The Moon***

On grown-up projects what we did above is known as 'risk analysis' or 'risk management'. Risks are things that could cause the project to go wrong or mess it up. 'Risk analysis' is just a fancy way of saying 'Figure out what could go wrong'. 'Risk management' is just a fancy way of saying that once you've figured out what could go wrong, you figure out what you can do about it.

NASA does exactly the same as you did above on their projects. Indeed, any well-run project should have a risk analysis done and projects often foul-up because no risk analysis was done.

### ***Your Turn***

#### **Exercise 1**

Here is the 'First step on the Moon' job that we described in chapter 4.

12 Get the astronauts to do what they're meant to do on the surface of the Moon
12 (a) First step on the Moon
I. Put on helmet, backpack etc.
II. Check out all the equipment
III. Open the door
IV. First astronaut goes down the ladder onto the Moon

V. Other three astronauts go down the ladder onto the Moon.

And here is a blank table like the one in diagram 9.

What Could Go Wrong?	How Likely is It?	What Effect Will It Have?	How Likely multiplied by What Effect	What Can We Do?
1.				
2.				
3.				
4.				
5.				
6.				
7.				o
8.				
9.				
10.				

Try and think of ten things that could go wrong during 'First step on the Moon'. Now for each of those things:

- o Grade how likely they are to happen on a scale of 1-3. (1 is not very likely, 3 is very likely and 2 is in-between.)
- o Grade the effect of these things happening also on a scale of 1-3. (1 is 'It will have a small effect', 3 is 'It will have a big effect' and 2 is in-between.)
- o Multiply the 'how likely' column by the 'what effect' column.
- o For the things that came out 6 and 9, write down what things you could do deal with them.

### Exercise 2

Do this step on your own project. Write out the final version of your plan and what you will do if things go wrong.

## **Summing up**

### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs

### **3. Figure Out How Big All The Jobs Are**

### **4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

### **5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.

### **6. Figure Out How Much The Project Will Cost**

By making a list of exactly what we need and then putting prices against each item.

### **7. Gotta Have A Leader**

### **8. Figure Out What To Do If Things go Wrong**



## Part 2 Carrying Out Your Plan

## Chapter 9 Do what the plan says

### Quiz

#### Question

Why do we build a plan for our project? Is it:

- (1) To see how much work is involved in doing it?
- (2) To see how long it's going to take?
- (3) To tell us what it's going to cost?
- (4) To tell us what to do in order to get the project done?
- (5) To show everybody how smart we are?

#### Answer

Well, the answer is that building a plan enables us to do *all five* of these things. Neat, huh? (Even if you don't care that much about the fifth one!)

#### **What You Need To Know**

The next step is pretty simple – you just do what the plan says.

#### **Why is this important?**

Well, duh – because that's how the project gets done.

#### **My Favourite Pop Star**

Once you have a plan, doing the project is pretty straightforward. You just look at the plan and do what it says. Here's our plan from chapter 8.



	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri		
<b>1 Research</b>														
(a) Decide who your favourite pop star is														
(b) Decide what kind of information you need to find out <b>Phone up in advance and book a computer</b>														
(c) Go on a computer or go to the library														
(d) Get the stuff - text, pictures, photos														
<b>2 Write it up</b>														
(a) Make sure you have all the materials														
(b) Decide what sections and the order of the sections														
(c) Write the sections														
(d) Assemble the sections onto the poster														
(e) Check that everything's okay														
<b>3 Give it to the teacher</b>														
														<b>TOTAL</b>
<b>Work (in hours)</b>														
<b>You</b>	1 1/2	2	2	2	2			2	2	2	2 1/2			18
<b>Your Mom</b>		3												3

**Diagram 1**

along with what we intend to do if things go wrong.

What Could Go Wrong?	How Likely is It?	What Effect Will It Have?	How Likely multiplied by What Effect	What Can We Do?
4. Computers not working	2	3	6	Come back the next day, Wednesday.
5. Things take longer than expected	3	2	6	There are at least two things you could do: <ul style="list-style-type: none"> <li>○ Don't write so much</li> <li>○ Use the weekends – start early (over the first weekend) or use the second weekend if you run into problems</li> </ul>
6. Leave things to the last minute	3	3	9	Follow the plan and do what the plan says every day. A little bit every day is better than a great big panic at the end.

**Diagram 2**

So here's how it goes. On Monday you:

- Decide who your favourite pop star is
- Decide the kind of information you want to get / decide the sections in your project and how they will be laid out
- Book a computer at the library.

Once you've done that, you don't need to do anything further on the project for today. You can forget about it. You can go do other things. You don't have to worry about the project or what's going to have to be done next or anything else about it.

Tuesday, you go to the library and print off what you need while your Mom gets the materials. Wednesday, you start writing and for the next six days, you do a section each day. Once you've done your section for that day you can stop. Or – if you want to – you can do tomorrow's section today. Do that and you can either get your project done quicker or get some days where you don't have to do any work on it. Nice, huh?

Then, on the second last day, you assemble it all together, leave it till the next day, give it a final look over and you're ready to take it into school and hand it in to the teacher.

Basically – that's all you do. But there's something you can do that's even better. This is to write down in the plan what actually happened as you did the project. Let me show you. Here again, is our starting plan.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri		
<b>1 Research</b>														
(a) Decide who your favourite pop star is	■													
(b) Decide what kind of information you need to find out <i>Phone up in advance and book a computer</i>	■													
(c) Go on a computer or go to the library		■												
(d) Get the stuff - text, pictures, photos		■												
<b>2 Write it up</b>														
(a) Make sure you have all the materials		■												
(b) Decide what sections and the order of the sections	■													
(c) Write the sections			■	■	■	■	■	■	■	■	■	■	■	■
(d) Assemble the sections onto the poster											■	■	■	■
(e) Check that everything's okay												■	■	■
<b>3 Give it to the teacher</b>													■	
														<b>TOTAL</b>
<b>Work (in hours)</b>														
<b>You</b>	1 1/2	2	2	2	2			2	2	2	2 1/2			18
<b>Your Mom</b>		3												3

**Diagram 3**

So let's say you that on Monday you do everything that has to be done. You could show that on your plan like this:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>													
(a) Decide who your favourite pop star is													
(b) Decide what kind of information you need to find out													
Phone up in advance and book a computer													
(c) Go on a computer or go to the library													
(d) Get the stuff - text, pictures, photos													
<b>2 Write it up</b>													
(a) Make sure you have all the materials													
(b) Decide what sections and the order of the sections													
(c) Write the sections													
(d) Assemble the sections onto the poster													
(e) Check that everything's okay													
<b>3 Give it to the teacher</b>													
													<b>TOTAL</b>
Work (in hours)													
You	1 1/2	2	2	2	2			2	2	2	2 1/2		18
Your Mom		3											3
													21

Diagram 4

Now suppose then on Tuesday, you got to the library and got the stuff okay, but your Mom wasn't able to get all of the materials. Let's say the stationary store had run out of large sheets of poster-sized paper, so that your Mom has to go back on Wednesday. So we could show the plan at the end of Tuesday like this:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>													
(a) Decide who your favourite pop star is													
(b) Decide what kind of information you need to find out													
Phone up in advance and book a computer													
(c) Go on a computer or go to the library													
(d) Get the stuff - text, pictures, photos													
<b>2 Write it up</b>													
(a) Make sure you have all the materials													
(b) Decide what sections and the order of the sections													
(c) Write the sections													
(d) Assemble the sections onto the poster													
(e) Check that everything's okay													
<b>3 Give it to the teacher</b>													
													<b>TOTAL</b>
Work (in hours)													
You	1 1/2	2	2	2	2			2	2	2	2 1/2		18
Your Mom		3											3
													21

Diagram 5

And then let's say she is able to get the poster-sized paper on Wednesday and also, that you write the first section. So on Wednesday it'll look like this:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>													
(a) Decide who your favourite pop star is	■												
(b) Decide what kind of information you need to find out <b>Phone up in advance and book a computer</b>	■												
(c) Go on a computer or go to the library		■											
(d) Get the stuff - text, pictures, photos		■											
<b>2 Write it up</b>													
(a) Make sure you have all the materials			■										
(b) Decide what sections and the order of the sections	■												
(c) Write the sections			■	■	■			■	■	■			
(d) Assemble the sections onto the poster											■	■	
(e) Check that everything's okay												■	■
<b>3 Give it to the teacher</b>													■
													<b>TOTAL</b>
<b>Work (in hours)</b>													
<b>You</b>	1 1/2	2	2	2	2			2	2	2	2 1/2		18
<b>Your Mom</b>		3	3										6
													24

Diagram 6

And finally, let's say you end up writing five sections – childhood, early career, ambitions, songs, personal life – rather than six, so that these get done in five days rather than six. So the final plan, on the day the project ends might look like this:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>													
(a) Decide who your favourite pop star is	■												
(b) Decide what kind of information you need to find out <b>Phone up in advance and book a computer</b>	■												
(c) Go on a computer or go to the library		■											
(d) Get the stuff - text, pictures, photos		■											
<b>2 Write it up</b>													
(a) Make sure you have all the materials			■										
(b) Decide what sections and the order of the sections	■												
(c) Write the sections			■	■	■			■	■	■			
(d) Assemble the sections onto the poster											■	■	
(e) Check that everything's okay												■	■
<b>3 Give it to the teacher</b>													■
													<b>TOTAL</b>
<b>Work (in hours)</b>													
<b>You</b>	1 1/2	2	2	2	2			2	2	2 1/2			16
<b>Your Mom</b>		3	3										6
													22

Diagram 7

Why is this useful? Well, it's useful because the next time you come to do a project, it's almost like you have a ready-made plan. Remember we talked in chapter 2 about having a recipe? Well, it's like you have a recipe. Now obviously, you may never have to do a project on 'My favourite Pop Star' again. But if we had to do one on say, 'My Favourite Country' or 'The Best Holiday I Ever Had' or lots of other kinds of projects, they would all

follow the same pattern. And look at all the useful information you would have in your recipe. You would know how long things took and how much work was involved and all sorts of other interesting things. It would make planning your next project very easy. So writing down what actually happens is a really good thing to do.

Now let's take putting a man on the Moon.

### ***Putting A Man On The Moon***

Once again - even though it's a vast and complicated project – the people on this project do exactly the same thing – they follow what the plan says and they write down what actually happened. Since they *will* be doing this same project more than once, this information will be hugely valuable to them when they come to do the second Moon mission, and the ones after that.

### ***Your Turn***

Now go do this step on your own project:

- Do what your plan says each day.
- Write down what happens.

### ***Summing up***

#### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

#### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs

#### **3. Figure Out How Big All The Jobs Are**

#### **4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

#### **5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.

**6. Figure Out How Much The Project Will Cost**

By making a list of exactly what we need and then putting prices against each item.

**7. Gotta Have A Leader**

**8. Figure Out What To Do If Things go Wrong**

**9. Do What The Plan Says**

And write down what happens.



## Chapter 10 Get people to do things for you

### Quiz

#### Question

If you have a project that involves a team of people, what is the best kind of person to have on your team. Is it:

- (1) A person who's good in an emergency?
- (2) A person who always does what they say they will do?
- (3) A person who's strong and inspires others?

#### Answer

This is a tricky question, isn't it? But I think the answer has to be (2). If everybody on your team was like this, then the project would get done and get done without too much difficulty. There wouldn't be so many emergencies, so that would mean you wouldn't need the people in (1). And people in (3) are great to have sure, but you don't really need them that much if everybody's doing what they said they would do.

### ***What You Need To Know***

Sometimes you need other people – not just yourself – to make sure that projects get done. Other people need to do stuff for you. So how do you get them to do that?

### ***Why is this important?***

Because if they don't do what they have to do then the project won't get done.

### ***My Favourite Pop Star***

If you were doing a project that involved other people, wouldn't it be nice if, whenever you asked them to do something for you, they went and did it? But I'm sure you've figured out that the world isn't like that. Other people have other things going on in their lives, other things that matter to them, other things that interest them or which are important to them or take up their time. So when you need other people to do stuff for you, here are a few things you need to think about.

1. Be clear about exactly what it is you want – for example, tell your Mom *exactly* what you want from the stationary store. The less room there is for confusion and



mistakes, the better. Make it easy for her – give her a list – and if anything’s not clear, explain it to her.

2. Ask people *nicely*.

3. Not everybody is the same. People are different and this is true when it comes to projects as well.

- Some people will always do what they said they would do. (In the last chapter we assumed that your Mom was like that.) These are great

people to have on your project. Once you’ve told them clearly what you want and asked nicely, you can be pretty certain that they will do it and you probably don’t need to think any more about it until they show up with the thing done.

- Then there are people who need a bit of a push. You tell them what you want, you ask nicely, but – if that’s all you do - nothing much happens. Maybe they’re very busy or forgetful – who knows? So for these people you need to remind them. ‘You won’t forget the stationary that I need for my project, will you Dad?’ ‘I’m going to need that by Wednesday.’ ‘You haven’t forgotten my whatever-it-is, have you?’ This sort of thing.
- Finally there are people who need be pushed every inch of the way. This is no fun, but if they’re the only people who can do the thing that has to be done, then you’ll have to do the pushing.

The more you can have people of the first type on your project, the better off you’ll be. But don’t be silly enough to think that everyone is like that. *They’re not*.

### ***Putting A Man On The Moon***

Exactly the same things occur in putting a man on the Moon. People are people. Just because they’re grown-up or doing a much more important or bigger project or a more complicated doesn’t mean that they’re not still people. If you were running this project you would have all the same problems of getting people to do what you want, that we spoke about above.

Smart people have studied this problem of how to get people to do stuff for you and have come up with all kinds of ways of dealing with it. If you’re interested, or when you’re older you can go check out some of this stuff. But until then, don’t forget that people are

people, not robots. They don't all behave the same way. Not everybody is like you. Don't make the mistake of thinking that they are.

## **Your Turn**

Have a think about your own project or some project where you need other people's help. Write down:

- Who they are
- What they're like – will do what they say, do they need reminders, do they need pushing?
- How you are going to get them to do what you need.

## **Summing up**

### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs

### **3. Figure Out How Big All The Jobs Are**

### **4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

### **5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.

### **6. Figure Out How Much The Project Will Cost**

By making a list of exactly what we need and then putting prices against each item.

### **7. Gotta Have A Leader**

### **8. Figure Out What To Do If Things go Wrong**

### **9. Do What The Plan Says**

And write down what happens.

**10. Get People To Do Things For You**



## Chapter 11 Let everyone know what's happening

### Quiz

#### Question

In general, on a project, who needs to know how the project is going? Is it:

- (1) Just you?
- (2) You and the other people working on the project?
- (3) Everybody affected by it?

#### Answer

In general, the answer is (3). If people are affected by the project then of course they want to know how it's going.

### ***What You Need To Know***

You need to tell everybody affected by the project how it's going. This is especially true if bad things happen on the project. On grown-up projects this is called 'status reporting'. This is just a fancy way of saying that you tell other people involved in the project how it's going.

### ***Why is this important?***

Because people need to know how the project is going to affect them.

### ***My Favourite Pop Star***

A status report for 'My Favourite Pop Star' might be nothing more than your Dad saying, 'How's that project of yours going?' and you saying, 'Great.' (You could add that 'it's on schedule'. That might freak him out just slightly!)

### ***Putting A Man On The Moon***

However, I'm sure you can see that knowing that status of putting a man on the Moon is quite a different story. There are many different people who want to know what's

going on. The astronauts and their computers will send a constant stream of status information back to Mission Control. NASA will have people in touch with the astronaut's families to tell them how it's going. NASA will issue news bulletins and press releases and put status reports on its website. This is status reporting on a big, complex project.

## **Exercise**

Have a look at the newspaper and find an article about some project – it can be anything. (The government is always doing projects, for example.) From what you can see or may have heard, do you think whoever is running the project is doing a good job or not of the status reporting? Why?

## **Summing up**

### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
- All the little jobs

### **3. Figure Out How Big All The Jobs Are**

### **4. Figure Out When Those Jobs Have To Be Done**

And draw them on a chart.

### **5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.

### **6. Figure Out How Much The Project Will Cost**

By making a list of exactly what we need and then putting prices against each item.

### **7. Gotta Have A Leader**

### **8. Figure Out What To Do If Things go Wrong**

### **9. Do What The Plan Says**

And write down what happens.

**10. Get People To Do Things For You**

**11. Let Everyone Know What's Happening**

## Chapter 12 Learn from your project

### What You Need To Know

And finally, whether your project is a big success or a bit of a mess, learn something from it.

### Why is this important?

Because then – hopefully – you’ll:

- Do the things that worked well before; and
- Won’t make the same mistakes twice.

### My Favourite Pop Star

Here are three things you could usefully take away from this – or any project. They are

1. The plan as it actually turned out. Here it is again from chapter 9.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
<b>1 Research</b>													
(a) Decide who your favourite pop star is	■												
(b) Decide what kind of information you need to find out <i>Phone up in advance and book a computer</i>	■												
(c) Go on a computer or go to the library		■											
(d) Get the stuff - text, pictures, photos		■											
<b>2 Write it up</b>													
(a) Make sure you have all the materials			■										
(b) Decide what sections and the order of the sections	■												
(c) Write the sections			■	■	■			■	■				
(d) Assemble the sections onto the poster										■			
(e) Check that everything's okay											■		
<b>3 Give it to the teacher</b>												■	
													<b>TOTAL</b>
<b>Work (in hours)</b>													
<b>You</b>	1 1/2	2	2	2	2			2	2	2 1/2			16
<b>Your Mom</b>		3	3										6
													22

Diagram 1

2. What was the one thing that you did that really worked well on this project – a smart thing you did, a nifty idea that you came up with, something that really worked well on the project or made the project easier to do, something that is worth remembering for the next time? Write it down so you won’t forget it.



3. What was the one thing that really *didn't* work well on this project – it caused you problems. It messed you around. If only you'd known about it, you would have avoided it. Write this down too so that it won't happen next time.

## ***Putting A Man On The Moon***

On grown-up projects, I hope you can see how important learning from finished projects is. On big, complex projects, this job of learning from the project has lots of different names. Sometimes it is called a 'Post-mortem'. In the military it is called an 'After-action Review'. Some other people call it an 'Opportunity for Improvement' or a 'Do Differently'. It doesn't matter what you call it – what matters is that you *do* it.

## ***Your Turn***

Use what we said in 'My Favourite Pop Star' above to learn a couple of things from your project.

## ***Summing up***

### **1. Know What You're Trying To Do**

- What – exactly – are you trying to do?
- How you will know when you're finished?
- Who the people involved in the project are and what they're hoping to get from it.

### **2. Figure Out What Jobs Have To Be Done To Get The Project Finished**

- The big chunks of work that have to be done.
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And draw them on a chart.

### **5. Figure Out Who's Going To Do The Jobs**

And draw them on a chart.

**6. Figure Out How Much The Project Will Cost**

By making a list of exactly what we need and then putting prices against each item.

**7. Gotta Have A Leader**

**8. Figure Out What To Do If Things go Wrong**

**9. Do What The Plan Says**

And write down what happens.

**10. Get People To Do Things For You**

**11. Let Everyone Know What's Happening**

**12. Learn From Your Project**

**'So we arrived and were able to plant our flag at the geographical South Pole. God be thanked!'**

**Roald Amundsen  
(Norwegian explorer, 1872 – 1928)**



## The End

And that's all there is to it. From now on, if you use this approach on any project you have to do, then:

- It would be hard to see how the project could go wrong.
- The project will get done with the least amount of time and energy.
- There will be little or no money wasted on the project.
- The project will get done with the least amount of stress for you and everybody else involved.

And how good is that?

By the way, let me know what you thought of the book. You can email me at [fergus.oconnell@etpint.com](mailto:fergus.oconnell@etpint.com).

## Notes

## Notes

## Notes

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