

# Rides and Technology

Workbook for students aged 12 ~ 14

Name: .....

School: .....

Date of Visit: .....



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## Welcome to Disneyland® Paris






It's really great that you're coming to visit us at Disneyland® Paris. We are all looking forward to meeting you – and we know you're going to have fun and discover lots during your time with us.

In this Workbook we've put together masses of inside information, incredible facts and fun projects for you to do during your stay.



*Have a fun time!*

### Do:

-  Remember to take this pack, a notebook and some pens and pencils
-  Bring good shoes and wet weather gear and please wear a shirt and shoes at all times – even if it's really hot
-  Pick up a Park Guide at the entrance to both of the Disney® Parks – it will help you find your way around and give you the times for the parades and shows; together with locations and times of character meet n greets



### Don't:

-  **Get lost:** always arrange a meeting place with your teacher and agree a time to meet – a good place is the information board at the top of Main Street, U.S.A® just in front of Sleeping Beauty Castle in Disneyland Park or at Guest Services in Walt Disney Studios® Park
-  **Get hurt:** read the safety notes at the entrance to all the attractions – they are there to keep you safe! Please make sure that you read them and do what they say – it is not sensible to ignore these notes – you could injure yourself and other people

## Before You Travel

Before you join us in Resort, why not check your knowledge about the Walt Disney Company and the Disney Destinations.

1	What famous Disney Character is also called Topolino, Mi Lao Shu and Miki Tikus? For an extra point, when was he born?		
2	What was the name of Walt Disney's famous film about a boy whose nose grew when he told lies?		
3	Name two other Disney Destinations outside of America and Europe, one point for each		
4	On which attraction would you meet pirates? For an extra point, which Land and Disney® Park would you be in?		
5	Approximately How many visits a year are made to Disneyland® Paris?	5 million, 8 million, 15 million	
6	Which roller coaster goes around a mountain?		
7	Whose castle is at the top of Main Street, U.S.A.® in Disneyland® Park?		
8	Whose music can you hear on Rock 'n' Roller Coaster?		
9	What are the people who work at the Resort called?		
10	How many people work here?	8,000, 13,000, 14,000	
<b>My score out of 14 is</b>			

### Answers:

- 1 Mickey Mouse, 1928
- 2 Pinocchio
- 3 Tokyo Disneyland, Hong Kong Disneyland
- 4 Pirates of the Caribbean, Adventureland, Disneyland Park
- 5 15 million
- 6 Big Thunder Mountain
- 7 Sleeping Beauty
- 8 Aerosmith
- 9 Cast Members
- 10 13,000



## Roller Coaster Facts

### Big Thunder Mountain

- A mine train roller coaster that goes around a mountain, with fast paced drops and turns
- This is the only Big Thunder Mountain attraction in the world to be situated on an island, completely isolated from the Park
- The ride lasts for four minutes and can carry 30 guests per runaway mine train



### Indiana Jones™ and the Temple of Peril

- Based on an expedition to a forgotten civilisation, with a temple, abandoned base camp and thick vegetation
- It reaches a summit of almost 16 metres, with a total track length of 605 metres
- It lasts for one minute 30 seconds and can carry 12 guests per train

### Space Mountain: Mission 2

- The Columbian cannon launches your rocket train from 0 to 50 km (31 miles) per hour in under two seconds, at an angle of 32 degrees
- The ride lasts for two minutes ten seconds with 24 guests per rocket train
- There are more than 100 speakers in each train



### Rock 'n' Roller Coaster Starring Aerosmith

- You go from 0 to 85 km (54 miles) an hour in less than two seconds
- There are 120 on board speakers playing the music of Aerosmith
- It lasts for one minute ten seconds and can carry 24 guests per train

## Roller Coaster Science Project

**Choose one of the Resort's spectacular roller coaster rides and carry out a science investigation.**

First of all take the ride. When you have finished, sit down and draw out the ride as you remember it, showing the loops and twists. Indicate at each section of the ride the direction of force and then describe the motion you felt.

Name of roller coaster:

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1. On your diagram, mark where potential and kinetic energy come into effect.

2. What is the pair of forces that come into play when riding a roller coaster?

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3. How can the frictional force between a roller coaster car and a track be reduced?

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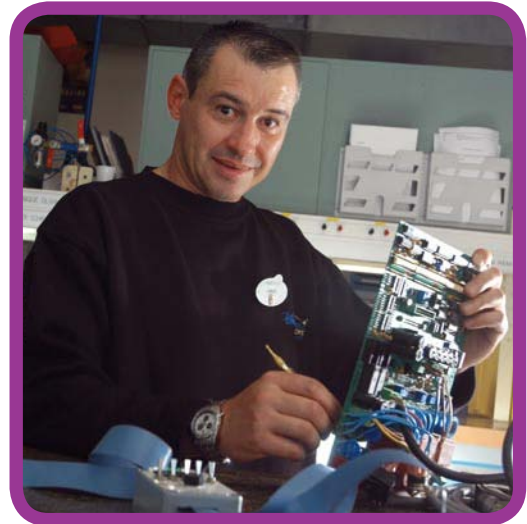
4. What is used to slow down a roller coaster?

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## Imagineering Facts

- Disney's design team is called "Imagineering" (a mix of Imagination and Engineering) and the people who work there are Imagineers
- Walt Disney Imagineering is the subsidiary of The Walt Disney Company in charge of Master Planning, Creative Development, design, engineering, production, project management and research & development
- Their concepts usually start with a "blue-sky" brainstorming phase (Blue-sky means creating something from nothing, a stage when all ideas are discussed and considered no matter how unrealistic they may sound)



- Next comes the concept sketch, storyboard or model, which will be used for feasibility studies (both construction and financial)
- The design phase is now done mostly on computer, with each detail of the design undergoing the same detailed approach
- Once designed, the different elements can go into production and can finally be installed



## Imagineering Facts

Let's look at Sleeping Beauty Castle

### Research

Walt Disney Imagineering designers wanted to build a castle different from any that could be seen in Europe. For reference they used:

- Photographs of real French castles including Mont St Michel
- The Neuschwanstein Castle in Bavaria, Southern Germany (pictured right)
- Images in books and magazines, sketches and early Renaissance paintings



### Construction

Sleeping Beauty Castle in Disneyland® Park is 43 metres tall but looks larger because:

- Forced perspective was used in its architecture
- Landscaping also used forced perspective (small trees at the top, large at the base)
- The high moat bridge makes it look important

### Details

- The copper weather vanes on top of Sleeping Beauty Castle were produced by two Frenchmen
- They just looked at the rooftops and the drawings that Imagineers gave them and created the weather vanes, without even going back to their workshop



- The Castle's 16 turreted towers were made in Italy and installed on the Castle's base using the tallest crane in Europe, measuring nearly 90 metres high
- The tallest tower is almost 17 metres high and weighs 15 tons

## Imagineering Project

### Consider yourself an honorary Imagineer!

As soon as you enter the Disneyland® Park you can see Sleeping Beauty Castle at the top of Main Street, U.S.A.®. Using a digital camera or sketchbook and coloured pencils, record as much detail as you can of the Castle, the greys and blues of the Castle stonework, the pink of the turrets, and their copper fittings and the blue roof tiles.

Draw a rough sketch of Sleeping Beauty Castle here

(turning the page sideways will help to fit it in the box):



Draw any details here:


1. Why has Sleeping Beauty Castle been chosen to dominate the skyline of the Disneyland Park?
2. Why do you think so much use has been made of pinks and copper in the Castle?
3. Look closely and touch the walls of the castle. What do you think they have been made of? What makes them weather resistant?
4. The nine Aubusson tapestries in the Gallery in Sleeping Beauty Castle tell the Sleeping Beauty story – what other methods could the Imagineers have used to portray the story to the visitors?



## Ride Audio System Facts

### In-seat audio systems on Space Mountain: Mission 2 and Rock 'n' Roller Coaster Starring Aerosmith

#### Space Mountain: Mission 2

- The original on-board system for Space Mountain was developed by Walt Disney Imagineering in 1993 – the first time that synchronised music was put on a roller coaster
- Walt Disney Imagineering developed a compression system (similar to mp3) capable of storing segments of the soundtrack on low capacity flash cards
- Space Mountain: Mission 2 has nine built in speakers per seat (four tweeters, four midrange and one underseat subwoofer)
- They are designed so that all passengers will experience the same quality of sound, whatever their height
- Digital audio with automatic playback speed adjustment synchronises the musical score to key elements of the show



#### Rock 'n' Roller Coaster Starring Aerosmith

- As with Space Mountain: Mission 2, each seat has its own audio system:
  - Two tweeters per seat
  - Two mid drivers per seat
  - Two subwoofers under the seat
- The soundtrack can vary its timing and speed as it moves through the ride
- Each car has its own on board computer (LCU) providing the digital audio and control signals. The soundtrack is digitally stored and the audio software, "Digital Sound Source and Sequencer", is custom written by Walt Disney Imagineering
- There are five different audio tracks by Aerosmith (one per train) synchronised to the ride. The light show in the ride is synchronised for each train and individual song. Different train, different light show. The Show Control system identifies the train before launch and adjusts the light show accordingly


## Ride Audio Systems Project

**For this project ride Rock 'n' Roller Coaster several times, taking a break between rides. On each occasion, make a mental note where in the ride the music is synchronised against ride speed and lighting effects, then answer the following questions:**

 Does the synchronisation change from ride to ride?

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 How does the music affect your reactions to the experience?

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 How important are the lighting effects to the overall experience?


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 How would you go about planning the control systems for such a complex ride?

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 What other music would be suitable for a roller coaster ride?

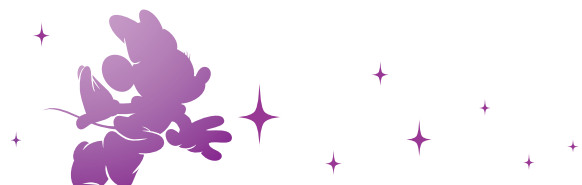
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 Why have you chosen this particular music?

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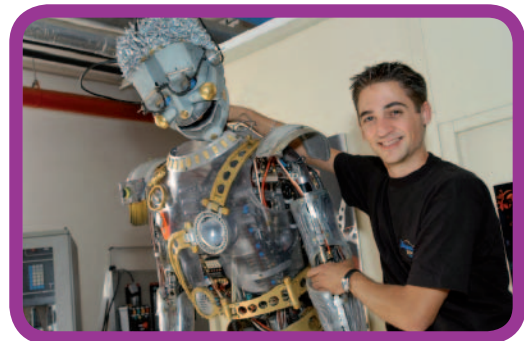
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## Working Together Facts

**Disney Cast Members are highly trained in the skills of teamwork and communication.**

- All Disney Employees are called Cast Members, this is because they are all putting on a “performance” for the guests (or visitors)
- Guest areas are referred to as on-stage, and behind the scenes is back stage
- There are 13,000 Cast Members



- The visitors come from all over the world
  - France 43%
  - Belgium/Luxembourg 6%
  - United Kingdom 16%
  - Germany 3%
  - Spain 12%
  - Italy 4%
  - Netherlands 7%
  - Others 9%

- The average Cast Member is 33 years of age and comes from France or the European Union
- They represent over 100 nationalities and speak 19 languages
- Everyday in Disneyland® Paris there are 497 actors and performers, 38 musicians, 134 show wardrobe employees, 24 stage managers, 62 puppeteers, 45 comedians/MC's, 39 Stunt men, 40 dancers, 8 live singers, 93 stage technicians



- Disney makes dreams come true, not only in its Parks but also through its community work, called ‘VoluntEars’
- Events are organised throughout the year, raising money, helping local associations and bringing sick and underprivileged children to the Resort
- Disney does its utmost to be environmentally friendly in all their actions. The use of chemical pesticides is limited; biological treatments are used wherever possible. Most of the motorised gardening equipment runs on bio-fuel. Disney sorts and recycles almost 40% of non-hazardous waste

## Working Together Project

Cast Members working in the Resort have to be able to work as a team and also to serve people from a large number of nationalities with a variety of languages.



Look at the signs in the attractions:

- Are they in words or symbols?
- Are they easy to understand, whatever your language?
- Select one attraction, who is restricted from riding it?
- Either photograph or draw the symbols that are used and add a written explanation



Design an additional sign for each ride that conveys all the information that is needed

### Existing symbols

Attraction 1	Attraction 2	Attraction 3

### New signs

Attraction 1	Attraction 2	Attraction 3



## Summing Up

### My Visit To Disneyland® Paris

When you return to school, create a PowerPoint presentation of your visit to Disneyland® Paris. You could show it to your friends during a school assembly.

To help you, we've put together some images of the Resort. You can find them in the Image Gallery at [www.disneylandparis4schools.com](http://www.disneylandparis4schools.com)

On your journey home you can think about each slide and plan it using this storyboard.

	Fact	Photo
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		



## When you come again



**As you will have discovered, there are lots of opportunities for you to have fun and learn at Disneyland® Paris.**

**We hope that you will come again, as a student, with your parents, or in years to come with your own family, perhaps at one of our special seasons like Halloween and Christmas.**

**We hope that you have had a really good time and look forward to welcoming you here again soon.**

**Good luck with your studies!**

