

Paper Reference(s)

6953/01

Edexcel GCE

**Applied Information and
Communication Technology**

Unit 3: The Knowledge Worker

January 2008

Scenario

Please open this material immediately. It should be distributed to candidates no sooner than three working weeks before the examination. Practice files are available in advance to help candidates familiarise themselves with the model.

Practice files: BBG_practice.xls
 manufacture_practice.txt
 safety_practice.txt
 survey_practice.txt

The description overleaf will be used as the scenario for the above specification, and will be reissued with the examination paper. This scenario should be used for the purposes of preparing candidates for the examination. This material must not be taken into the examination.

Further details are in the Instructions for the Conduct of Examinations, available from the Edexcel website for this qualification and subject.

Edexcel will not accept any request for special consideration should candidates be given the incorrect scenario for the examination they are sitting.

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Turn over

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Bronco Brian Gunn's Wild West Theme Park

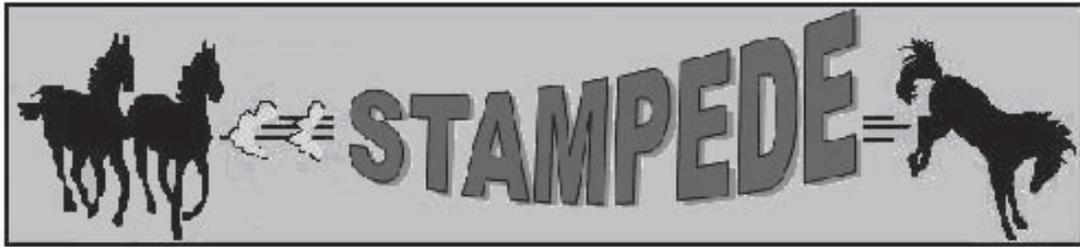


Brian Gunn grew up in the fifties at the height of the Western films' popularity. Brought up on John Wayne films and television programmes like the Lone Ranger, he became fascinated by the Wild West. At the age of ten he joined the Billericay Wild West Club that boasted forty-five members. Brian's crowning moment was when he won the World Quick-Draw Tournament in 1976 after being National Champion for eight consecutive years.

Inevitably Brian's working life was going to be connected in some way with the Wild West. Consequently on leaving school he opened the first of his fast-food restaurants in Billericay. The "Bronco Brian's Burger & Beans Bars" chain of restaurants is now countrywide and has, over the years, netted Brian a fairly substantial fortune.

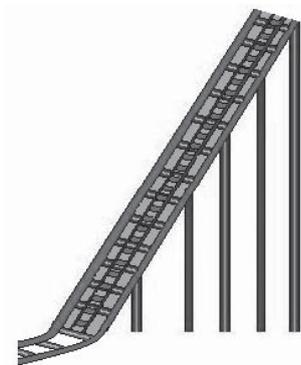
At the age of 60, having handed over the running of the restaurant chain to his son and daughter (Slim and Calamity), Brian turned his considerable expertise to building his dream. He started to build a Wild West theme park in Burnham on Crouch.

The feature ride of the theme park is going to be called Stampede. This will be a roller coaster ride through the Wild West. You have been asked to help design this ride and have been given a partially completed model to help you.



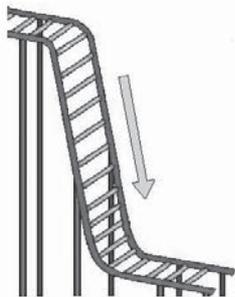
Features of the Stampede Ride

The Stampede ride can contain a number of different features. For safety purposes, however, its height is limited to 50 metres. It is not allowed to go below ground level and is completely driven by gravity after the Powered Climb. Passengers are seated in a 16-person cart for the ride.



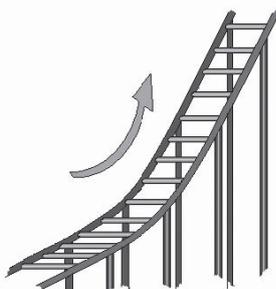
Powered Climb

The first part of the ride will be a powered climb. The cart is linked to a chain which is driven by a powerful motor. This drives the cart up to the top of the Powered Climb where it is released by the chain and the cart starts its gravity driven ride. As you are only allowed **ONE** powered climb and this must be at the beginning of the ride it should take you to the **HIGHEST** point of the ride.



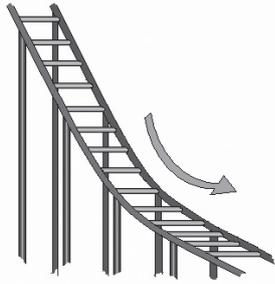
Vertical Drop

The Vertical Drop is exactly what it says, a vertical drop. The people on the ride are facing forward which gives the impression of falling face down. You can make the Vertical Drop as long as you want but be careful not to hit the ground.



Climb

The Climb is not a particularly thrilling part of the ride but one or two are necessary for the cart to regain height ready for the next thrilling feature. The track simply turns upward.



Drop

The Drop is the opposite of a climb. The track simply turns downward. This feature is mainly used to build up speed. The ride will be dangerous if the cart doesn't gather enough speed to negotiate some features.



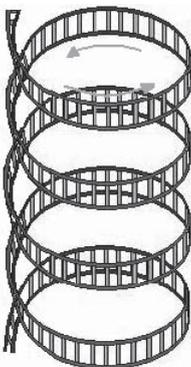
Zig-Zag

The Zig-Zag is a series of short drops and climbs in rapid succession. This feature requires enough speed to take you through all the climbs. The effect is meant to exert rapid vertical g-force changes. In other words it "leaves your stomach behind" several times in quick succession.



Loop

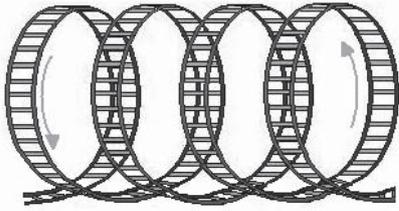
The Loop goes through a 360° turn with the passengers and cart upside down at the top. The cart needs a considerable amount of speed to complete this feature as it could be extremely dangerous if it stopped at the top.



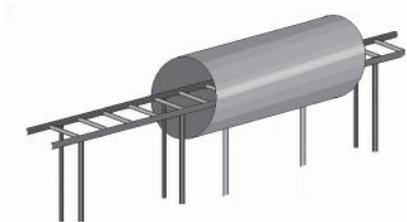
Spiral

The Spiral is a series of sharp 360° turns one after the other going downwards. The effect of the feature is to make you feel as if you are being thrown sideways out of the cart. This cannot happen of course but considerable lateral g-force is felt.

Corkscrew

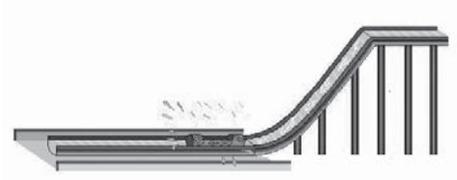


The Corkscrew is a cross between the Loop and the Spiral. It looks like a spiral on its side but turns the cart upside down several times in quick succession.



Tunnel

The Tunnel is a horizontal ride through a dark covered area. The height of the covered area is designed to be high enough to be safe but low enough to make the passengers think they have to duck.



Water Shoot

The Water Shoot is formed by a sharp drop followed by a horizontal ride through water.

(Artwork Michelle Goates 2007)

Description of the model

The partially completed model allows you to try different combinations of features in the ride. When completed the model will tell you how much the ride will cost to build; whether it is a safe combination of features; and will give you an idea of its effectiveness by calculating a thrill factor.

Worksheet	Description
Results	The 'Results' worksheet is the main input sheet. The first feature in the ride will always be the Powered Climb but you will need to choose nine other features for your ride. Features may be repeated. The features named should be entered into the column headed 'Type'. You will also need to put in lengths for each of your features (including the Powered Climb). These are entered into the column headed 'Length'. This worksheet should also display the maximum speed, the cost of the ride and the thrill factor.
Attributes	The 'Attributes' worksheet contains information about each of the features. The first column contains the minimum length of the feature. You can have longer lengths but not shorter. You are alerted if the length of any feature is too short by a cell on the 'Results' and 'Stampede' worksheets turning red. There is a critical point in each feature where the cart is travelling at its fastest or its slowest. The model will need the estimated acceleration to and from this point. The ratio of the lengths before and after this point is given in the 'Slow or Fast point Factor'. The cost to build each feature and its thrill factor is listed. These figures will be supplied. Note that negative acceleration gives the rate of slowing down.
Stampede	This worksheet will calculate the results for various different configurations of the ride. It is the main calculation worksheet and will show if the ride is feasible and how much each feature costs. Much of this information is duplicated on the 'Results' worksheet but some is not.
Thrill Factor	This worksheet will contain the results of a survey taken at similar rides with similar features. The final column is a calculation to turn the results into a thrill factor.

Some cells in the model are password protected. Should you wish to experiment with the model, the password is *edexcel*. Be aware that if you change the contents of any protected cell the model may not work.

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