

ABOUT THE ACTIVITIES

With Dragon Pathways children can begin to understand that computer simulations can represent real and imaginary situations. They learn how to explore simulations, explore options and test their predictions. They evaluate simulations by comparing them with real situations and considering their usefulness.

Children will apply what they have learnt when using simulations throughout their work, for example, looking at probability as in the Random Race example.

WHAT DOES THIS SET OF ACTIVITIES ASSUME	DEVELOPMENT SKILLS & TECHNICAL VOCABULARY	PREPARATION & RESOURCES
<p>This is an introduction to simulations.</p>	<ul style="list-style-type: none"> • Simulation • Explore • Predict • Test 	<ul style="list-style-type: none"> • a computer simulation which allows the user to make choices, enter data, explore consequences, and to freeze position, <i>e.g. an adventure game like Dragon Pathways</i> • <i>print out the stones PDFs from your Dragon Pathways CD or the Dragon Pathways companion website. Ensure that you and your pupils know how to change variables in the Action stones using the sliders and input choices</i>

WHAT CAN YOU EXPECT CHILDREN TO HAVE LEARNED:

<i>most children will:</i>	Recognise the patterns within simulations and make and test their predictions
<i>some children will not have made so much progress and will:</i>	Use simulations to make and test predictions and explore options
<i>some children will have progressed further and will:</i>	Identify the relationships and rules on which the simulations are based and test their predictions

LEARNING OUTCOMES Children Should Learn	ACTIVITY	LEARNING OUTCOMES	SCREENS
<ul style="list-style-type: none"> Key idea: that computer simulations can represent real or imaginary situations 	<ul style="list-style-type: none"> Load the Comet and Planets Simulation. Demonstrate the main features of the simulation. Show the class how to edit the rules or change the speed of the objects in the simulation. Point out how the computer simulation allows users to study or try things which would be difficult or impossible to do in practice. Compare the simulation with other models, <i>e.g. those used by architects</i>. Ask the class to think of examples where simulations might be useful, <i>e.g. for training pilots, designing buildings, testing products</i>. 	<ul style="list-style-type: none"> useful simulations include adventure games that allow prediction of outcome; problem solving; scientific simulations allowing variables to be changed, <i>e.g. sunlight and water for a plant</i>. 	Comet & Planets UFO Chase
<ul style="list-style-type: none"> key idea: children will understand that computer simulations allow users to explore options and that they can edit rules in a computer simulation 	<ul style="list-style-type: none"> Ask the children to explore one of the simulations in the FIXITS folder, in small groups, for a limited amount of time. Ask them to record any decisions that they have made and the results of any actions. Bring the class together to discuss what they have found out. Ask the children to write down what they will do next when they work with the software again. Encourage them to think of a variety of actions. Ask the children to carry out the actions and to record what happens. Bring the class together to discuss questions such as <i>what can be changed; how has it changed; what happens; does it always happen?</i> Discuss any patterns and connections that they have identified and tell them how they can test if they are always true. Children who find the activity easy could be encouraged to express patterns and rules formally. This provides an opportunity to develop their use of causal language such as 'because'. 	<ul style="list-style-type: none"> use the simulation to make and explore predictions and to identify patterns 	FIXITS: Bricks Frogger Pong
<ul style="list-style-type: none"> key idea: computer simulations are simplified representations 	<ul style="list-style-type: none"> Ask the class to evaluate a simulation in Dragon Pathways, for example Race or Random Race. Get them to answer questions such as, <i>how is the simulation like/not like...; what has been left out; is it realistic; is it helpful; how could it be improved?</i> 	<ul style="list-style-type: none"> evaluate simulations 	Race Random Race

LEARNING OUTCOMES Children Should Learn	ACTIVITY	LEARNING OUTCOMES	SCREENS
<ul style="list-style-type: none"> • key idea: to explore the effect of changing the variables in simulations and use these to make and test predictions 	<ul style="list-style-type: none"> • Children could apply the skills learnt in this activity whenever they explore computer simulations as part of their work in other subjects. 	<ul style="list-style-type: none"> • use simulations to develop an understanding of what is being simulated • develop their ability to recognise patterns and make and test predictions 	Circus Act