

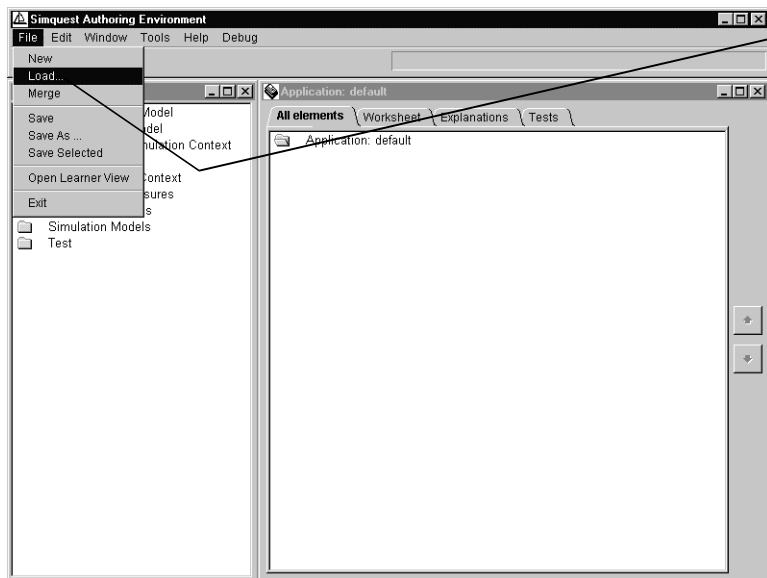
# Introduction

SIMQUEST makes it easy for you to create your own learning environment. You can design an environment in which media such as simulation, sound and video all interact with one another as in a video game. SIMQUEST is especially suited for creating a discovery learning environment. That is for situations in which students explore the domain rather than that is ‘told’ what the domain is about.

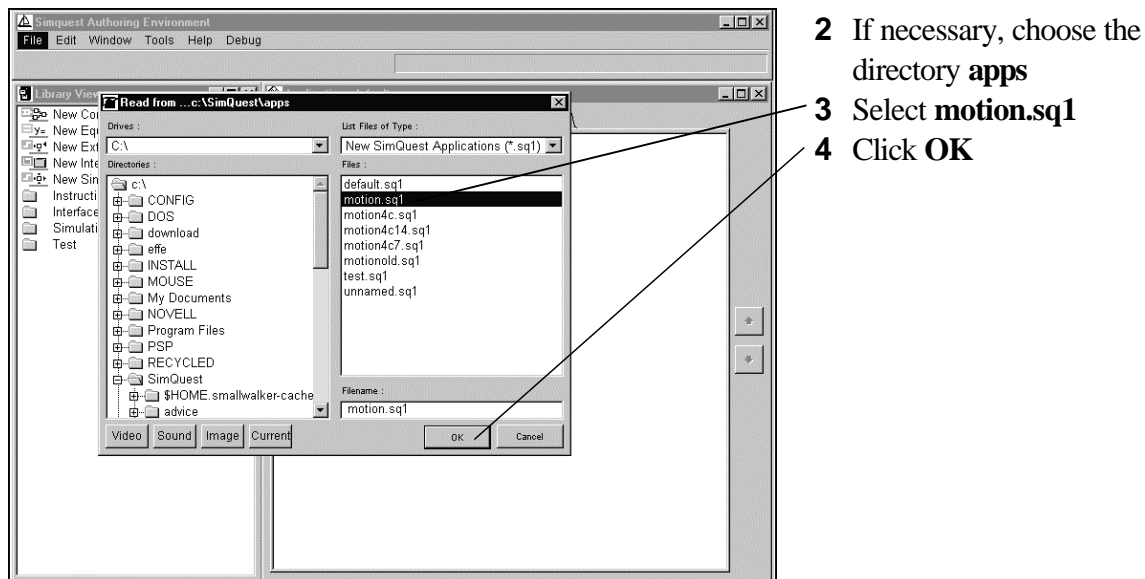
For a quick start and overview, this tutorial uses a learning environment about motion. The various chapters will guide you through the tasks of (re)creating important features of this environment, such as: the learner interface, and learner-tasks, called assignments. Meanwhile, you may also learn something about motion and how to simulate that.

## Loading an existing environment

You first have to load the Motion application.



**1** In the *SimQuest* menu, click **File** and choose **Load**



Check if the application named **motion** is loaded.

## What can you do with SIMQUEST

SIMQUEST enables you to design a multimedia discovery learning environment for your students. In this environment, you can build:

- models
- learner interfaces
- assignments
- explanations

### The model as core of the simulation

A model is the mathematical formula that is used to calculate the values of your simulation. The Motion application is about the domain Uniformly accelerated motion. It uses the model:

$$v(t) = v(0) + F\_drive * time$$

where:

$v(t)$

$v(0)$

$F\_drive$

time

is meant:

speed at point in time  $t$

speed at starting time (point in time 0)

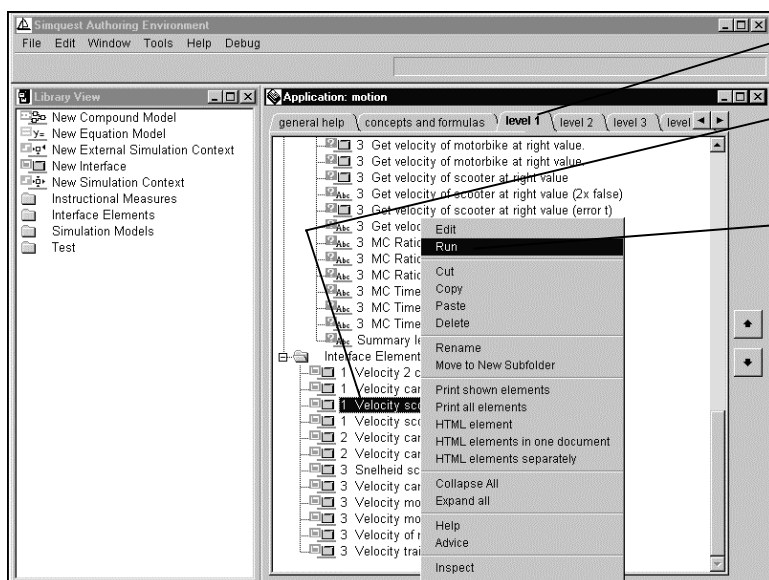
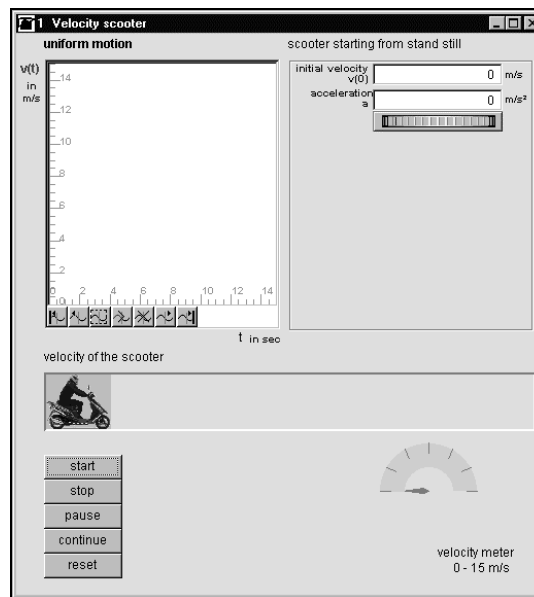
acceleration

time

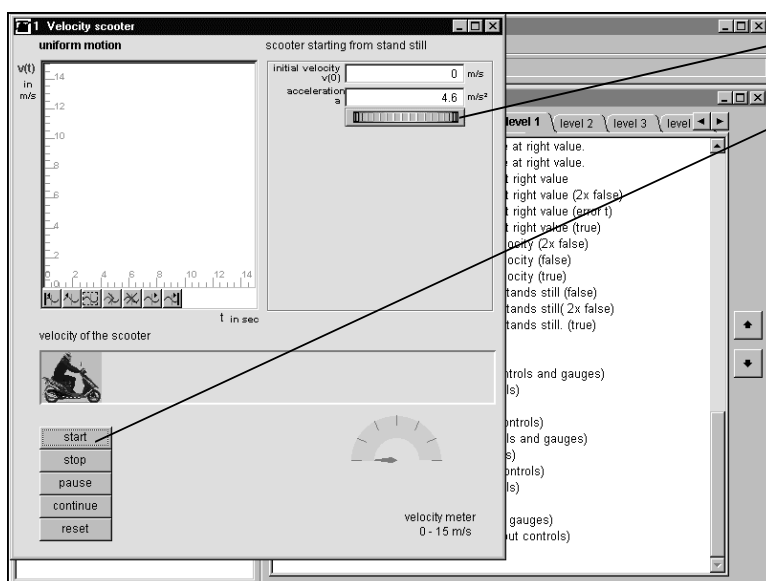
### The interface to explore the domain

An interface is used to make it possible for your learners to interact with the model. You let them do this by changing values, for example by: moving a slider, clicking a radio button, setting a dial, etc.

The interface shows how the model behaves. You can visualise model behaviour by using graphs, dials, thermometers, etc. The interface below is taken from the Motion application.



- 1 In the *Application* window, click on the **level 1** tabsheet
- 2 In *level 1*, select the interface **1 Velocity scooter**
- 3 Click your right mouse button and choose **Run**

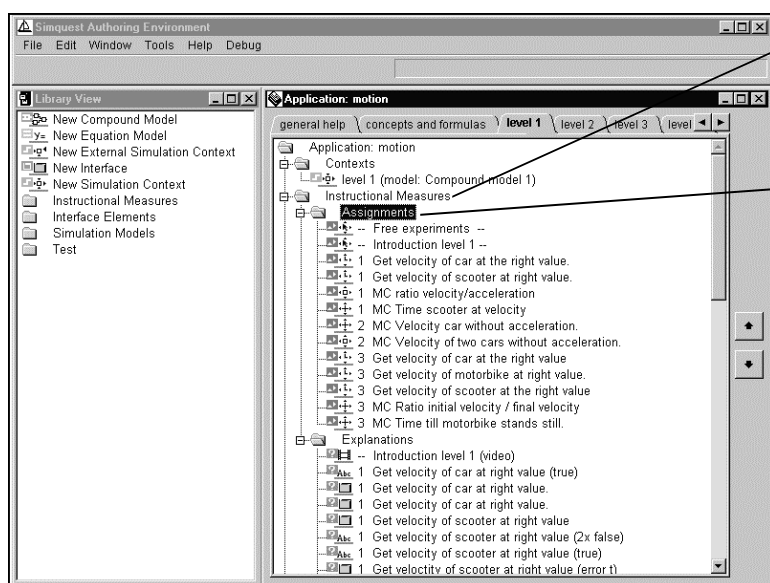
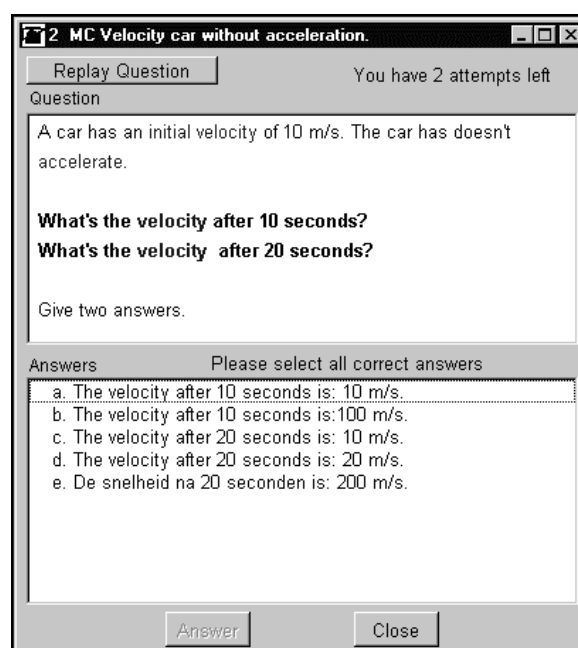


- 4 Set values by turning the **wheel**
- 5 Click **Start** and see what happens
- 6 Close the interface window

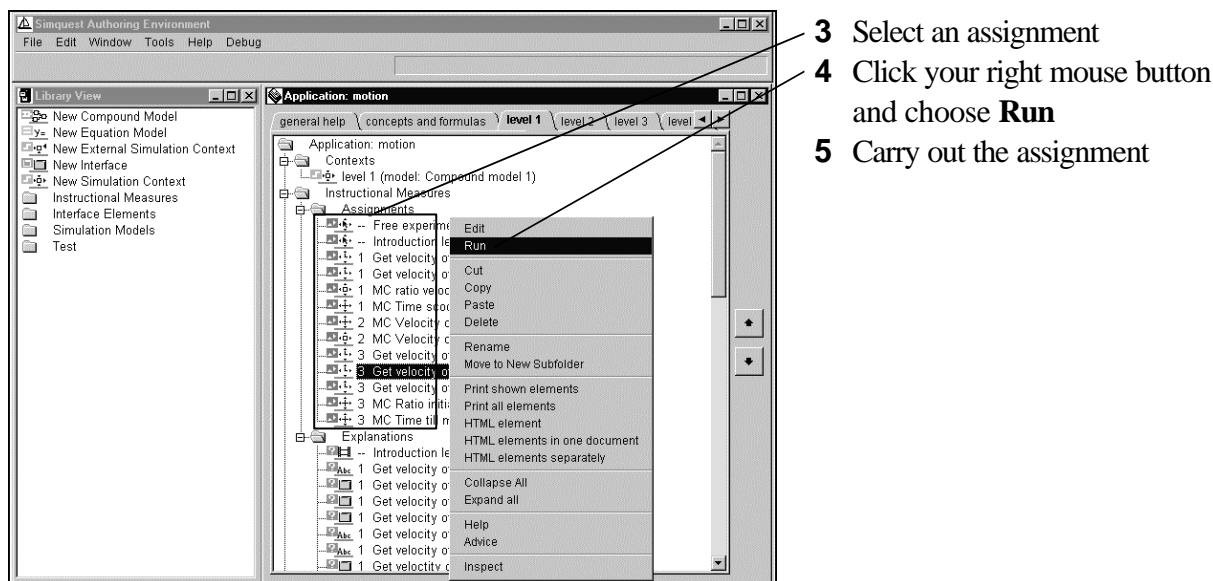
A special part of an interface is an animation. An animation is a drawing or a group of drawings, that change place, colour, shape, and/or size, depending on the (changing) values of the model. For example: you can draw a car that will move, a balloon that will be filled with air, or a beam of light that will change direction if it goes through a lens.

### Assignments to support exploration of the domain

Assignments are practices or exercises. To support your learners in exploring the domain, you can offer them multiple choice questions, let them predict specific values, or make them reach specific simulation states.

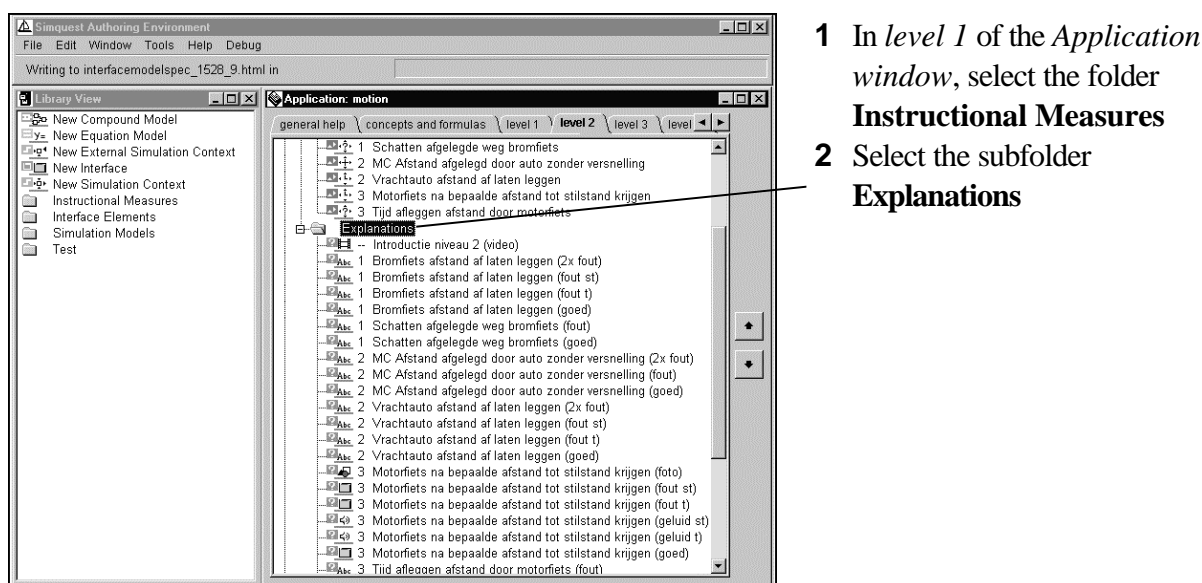


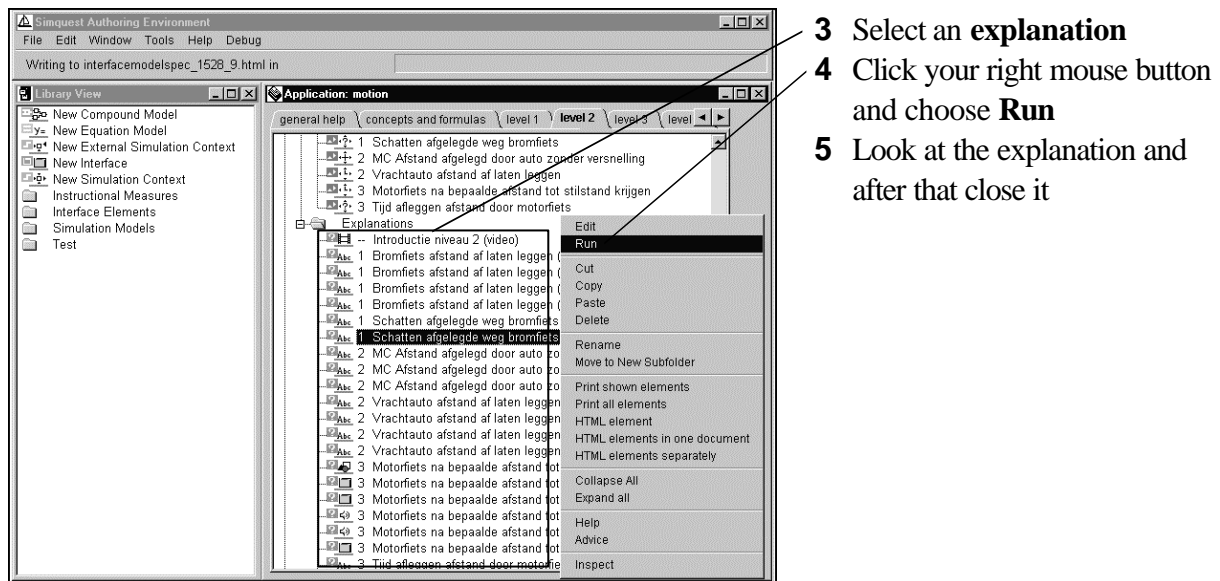
- 1 In level 1 of the Application window, select the folder **Instructional Measures**
- 2 Select the folder **Assignments**



### Explanations to explain or to give feedback

Explanations are meant to provide your student with information to explain or illustrate something, or to give appropriate feedback. This information can be delivered in multiple forms: text, sound, picture, or video.



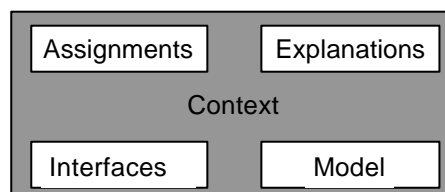


You do not have to design the above parts of your learning environment from scratch. SIMQUEST comes with a library of ready-made elements you can easily modify to your own specifications.

### *Structure of an application*

You have already seen that the application window contains folders with assignments, explanations, and interfaces. In this section you will find out the purpose and meaning of the tabsheets in the application window.

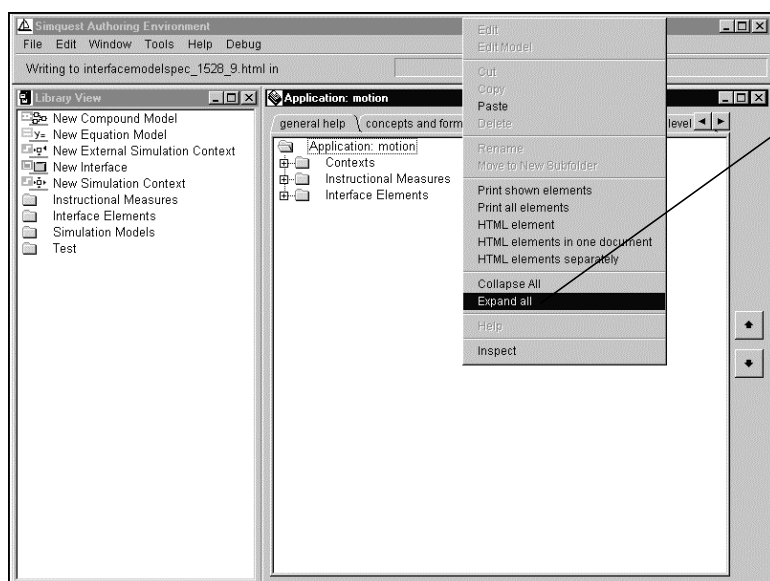
#### **Four parts in a context**



The picture above shows the application parts within its context. A context serves as a container of all necessary variables and values that hold the four parts together. Most of the time a context will be automatically added to your application, for example when you add an interface or a model.

#### **Application levels**

The four application-parts in a context represent one level in your application.



- 1 In the *Application window*, select the **level 1** tabsheet
- 2 Click your right mouse button and choose **Expand all**

As you can see in the Motion application, one level contains:

- 1 model (in the folder Contexts)
- 1 or more interfaces
- 1 or more assignments
- 1 or more explanations

- 3 Check if you can find the four application parts

You can use levels in your application to teach your learner about different models, because each level uses *only one* model in *one* context. The Motion application consists of 4 levels, so it teaches about 4 (different) models.

### Worksheet and All elements

There are also tabsheet in the application that do *not* represent an application level. Two of such tabsheets are:

- All elements
- Worksheet

The tabsheet *All elements* shows all the elements that are used in the application. Using this tabsheet you can get a quick overview, for example, of all interfaces currently available. This can be handy when you would like to re-use an interface in another context (level).

The *Worksheet* shows the elements that are not (yet) linked to a context. You can use this worksheet to edit elements you are probably going to link to a context later.

### *Summary and how to use this manual*

Now you know the parts of the application, which are: a model, interfaces, assignments, and explanations. The application parts are made visible in the application window in folders. These parts are held together by a context.

Besides connecting the application parts, a context also serves as an application level. An application can have multiple contexts or better, multiple levels. These levels are visible in the application window by tabsheets.

The tabsheets All elements and Worksheet do not represent an application level. They are used respectively as overview tabsheet and as non-linked elements tabsheet.

In the following chapters, you will learn how to modify the different application parts and how to create new parts. There is no strict sequence in which to create application parts. However, to learn to work with SIMQUEST properly, we advise you to finish a chapter before you proceed to another one. The chapters are:

- Chapter 2    Modifying *interfaces* and creating new ones
- Chapter 3    Creating *animations* in an interface
- Chapter 4    Modifying *explanations* and creating new ones
- Chapter 5    Modifying *assignments* and creating new ones
- Chapter 6    Re-using *models* and creating new ones



---

# *1* Introduction

---

Introduction .....	1-1
Loading an existing environment.....	1-1
What can you do with SIMQUEST .....	1-2
The model as core of the simulation.....	1-2
The interface to explore the domain .....	1-2
Assignments to support exploration of the domain .....	1-4
Explanations to explain or to give feedback.....	1-5
Structure of an application.....	1-6
Four parts in a context.....	1-6
Application levels .....	1-6
Worksheet and All elements .....	1-7
Summary and how to use this manual.....	1-7

---