

E-Card Maker

In this project, you learn how to create electronic cards with MicroWorlds EX . Send these cards to any of your friends or relatives that have either MicroWorlds EX or the MicroWorlds EX player (available at lcsi.ca/webplayer/).

Although this project shows you one way to create an e-card with MicroWorlds EX, it is not the only way. Once you've created this type, try to design other types of cards as well.

Remember: save frequently in case you must leave your activity before it is finished.

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Step 1: A Turtle Travel Advisory

Before you start, it's important for you to understand the general plan and something about the nature of turtles.

The MicroWorlds EX turtle must "live" in a MicroWorlds EX project for you to see it and play with it. But, a MicroWorlds EX turtle also likes to travel - it can move from one project to another, with a little help from you.

You can either export a turtle to your desktop or you can send it to another person as an email attachment. (The other person needs to have either MicroWorlds EX or the free MicroWorlds EX Web Player.) The other person then must import the turtle into a project and Presto! the turtle does whatever you programmed it to do.

This means that before the turtle leaves your project, you must pack its backpack carefully. All the programming, shapes, media, recordings, and action must be included in the turtle's backpack before it leaves on its journey.

Step 2: A Simple Animation

The simplest card is one in which an animated turtle moves across a plain screen. One or more announce boxes can be used to display the message. The message could be linked to the animation you create.

For example, a birthday card could have a frog hopping across the screen. The message could be: "Have a Hoppy Birthday!"

There are really three parts to the card design. The first part is the set-up. The second is the animation. The third is the message.

Start with the set up. First, hatch a new turtle:



Next, click on the Painting/Clipart button in the Toolbar to open the Clipart palette.



Click on the Animation shapes button:



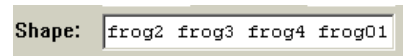
To select the four frog shapes, first click on the first shape in the group. Then shift-click on the last shape in the set:



Finally, click exactly on the turtle.



Right-click on the turtle and select **Open Backpack**. Open the turtle's State Tab. In the space next to Shape, you should see:



If you open the turtle's Shapes Tab, you should see these four shapes in the first four spaces.

Step 3: Set Up

Now, you need to place the turtle where you want it to be when the animation starts. Move it to the left side of the screen.

Open the State Tab of the turtle's backpack. On a piece of paper, write down the turtle's `xcor` and `ycor`. You'll want the turtle to start in the same place each time your card is run.

Next, pick a color for the cards background. Try out some different colors using the `setbg` command. For example:

```
setbg 102
setbg 31
```

Once you've decided on a background color, you're ready to define your `setup` procedure. Open the turtle's Procedures Tab. Create the following procedure

```
to setup
  setpos [ _ _ ]
  seth 90
  setbg _
end
```

Remember to use the `xcor` and `ycor` you wrote down for the `setpos` command (for example, `setpos [-180 -100]`). Put the numbers inside the square brackets. `seth 90` turns the turtle so that it's facing right. Use the color you selected for `setbg`, for example, `setbg 31`

Step 4: Action Time

It's time to add some action. In the Command Center, type:

```
setup
forever [fd 5 wait 1]
```

The input to `forever` is a list of instructions that runs over and over again, forever (or, at least until you stop it). It is like the `forever` mode of an OnClick instruction.

To stop the turtle, click the Stop button in the Toolbar.



Now that you tried the animation, you may want to adjust the start position. If you do, move the turtle to a new start position, open the State tab of the turtle's backpack and note the new `xcor` and `ycor` values. Change the `setup` procedure you created in Step 3 accordingly.

Step 5: Adding the Words

Now it's time to add the message. One way to do this is to use the `announce` command. Try this:

```
announce [Hi!]
```

A dialog box opens with the message "Hi!" in it. Clicking OK closes the dialog box.

Open the turtle's Procedures Tab and define a `cardmessage` procedure:

```
to cardmessage
  announce [Have a Hoppy Birthday!]
  wait 30
  announce [From your friend, Madison]
end
```

Remember to use square brackets around your message. Try your procedure. Adjust the input to `wait` if you think the delay is too long or too short.

(Note: You cannot use the word 'message' as the procedure name because `message` is a primitive in MicroWorlds EX.)

Step 6: The Sounds of Music

Add your own music or voice message to your card. Remember, music or recorded sound *greatly* increases the size of your file. If you are sending your e-card by email you may be online a long time

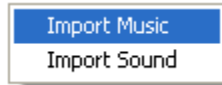
There are two ways to add music:

1 – Adding Music that's already saved in a file on your computer.

Open the turtle's Audio Tab:



Right-click in the Audio Tab. Select **Music** in the popup menu.



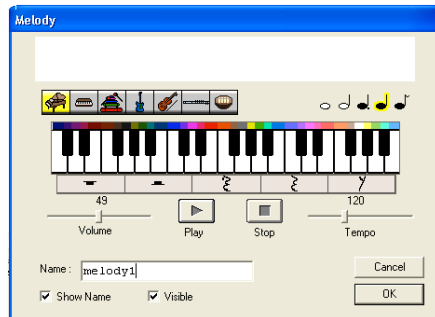
A browser dialog opens. Locate the music file you want to add to your card and click Open in the browser dialog box. The music is added to the turtle's backpack.

2 – Using the Melody Editor

Another way to add music is to use the MicroWorld EX Melody editor. Click on the Melody editor button in the Toolbar:



Click anywhere on the page. The Melody editor opens:



Select the instrument you want to use.



Then create a melody by clicking on the notes in the keyboard and rests below the keyboard.



When you're satisfied, give your melody a name and click OK.

A melody icon appears on the screen.



To play the melody, either click on the icon or type the melody's name in the Command Center. As long as the melody is in a project, its name is a command that plays the melody.

Right-click on the icon and select **Copy**. Open the turtle's Audio Tab (if not already open), right-click in the tab, and select **Paste**. The melody appears on the tab.



Remember, if you don't paste the melody into the Audio Tab, the melody will not be sent with the e-card.

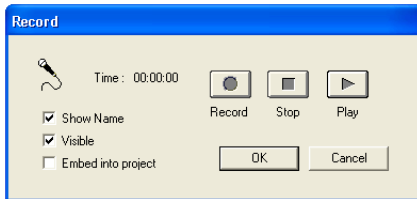
Step 7: Recording Your Own Greeting

Adding sound is similar to adding music. You can either import a sound, as you imported a MIDI or MP3 file, or you can record your own greeting.

To record your own greeting, click the Record button on the Toolbar:



The following dialog opens:



Record a short message. When you're satisfied with the message, select **Embed into Project**. This adds the sound to your project file. Embedding a sound or music clip makes it easier to successfully add it to your turtle's backpack. Then click OK.

A sound icon appears on your page:



Right-click on the icon and select **Edit**. Rename the sound, for example, Greeting.



Right-click on the icon and select **Copy**. Open the Audio Tab of the turtle's backpack (if it isn't already displayed), right-click in the tab, and select **Paste**. Your sound is pasted into the Audio Tab.



Remember, if you don't paste the melody into the Audio Tab, the melody will not be sent with the e-card.

Step 8: Putting It All Together

Now, assemble the three sections of the card. As you do this, you can check the timing for each section and the animation speed to make sure your design works well.

In the turtle's Procedures Tab, create a runcard procedure:

```
to runcard
  setup
  forever [fd 5 wait 1]
  launch [birthdaysong]
  wait 10
  cardmessage
  greeting
end
```

This procedure uses both `forever` and `launch`. Each of these starts an independent process in MicroWorlds EX. This means you can have two actions happening at once.

Usually, MicroWorlds EX runs the first instruction in a list or procedure and, when that instruction is complete, MicroWorlds runs the next instruction in the list or procedure, and so on. It runs each instruction one at a time.

Both `forever` and `launch` tell MicroWorlds EX to do something different. They tell MicroWorlds EX to start the instruction that is in the square brackets, but to not wait until the instruction is finished before starting the next instruction. In this way, two or more actions (processes) can be happening at the same time. In this case, the turtle is moving while the melody is playing and while the card message is displayed.

Try the procedure. In the Command Center, type: `runcard`

Is the timing right? You may want to make the `wait` period (before the message appears) longer, or you may want to remove the delay programmed with `wait` completely. Try different inputs to `wait` and `fd` in order to make sure the design is just what you want.

Once you're happy with the `runcard` procedure, open the Rules tab in the turtle's backpack.

In the OnClick instruction line, type: `runcard`

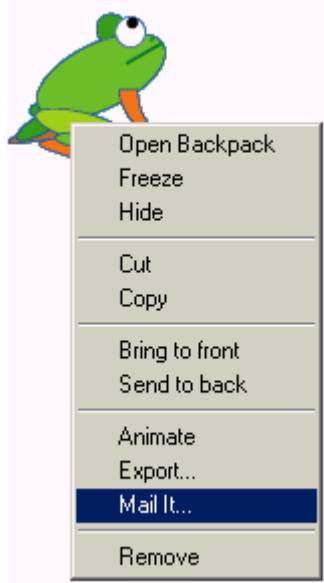


Leave it set to Once.

Click on the turtle and see if it displays your card.

Step 9: Sending Your E-Card

Now it's time to "mail" your e-card to someone else. It's mailed as an attachment to a regular email message.



Right-click on the turtle. Select **Mail It....**

A new message opens in your email client program. MicroWorlds EX has automatically added to this message all the instructions your friend will need to view your card. In addition, there are two attachments: the turtle (.mwa file) and an HTML file (.htm). The HTML file means that your friend does not need MicroWorlds EX to view your card – just the MicroWorlds EX Web Player and a browser.

Specifically, the instructions tell your friend:

- Which of the attached files to save,
- Which file to click on to start the e-card, and
- How to get the MicroWorlds EX Web Player at lcsi.ca/webplayer/ to view the card, if he or she does **not** have MicroWorlds EX.

Add your friend's email address and a brief personal message, too.

Then click Send. Your e-card is on its way.

Step 10: Going Further

Here are some ideas for making your e-card fancier:

- Take a picture of yourself using a digital camera. (Save it in jpeg format to keep your file size small.) Import the picture into MicroWorlds EX and add it as a turtle shape. Set the turtle to your face shape before mailing it or when your greeting message is played.
- Use a `when` command to stop the turtle as it crosses the screen. For example;
`when [xcor > ???][stopall]`