

Desert Landscapes

Programming is a textual, left-brain kind of activity. But students learn best when both sides of their brains are engaged. So most of our introductory exercises produce inspiring, graphical outputs to enliven both hemispheres and the corpus callosum that connects them. Here's another sample program:

To run:

Start up.

Draw a desert landscape.

Wait for the escape key.

Shut down.

To draw a desert landscape:

Clear the screen.

Draw the sky.

Draw the sun.

Draw the birds.

Draw the sand.

To draw the sky:

Use the lightest sky blue pen.

Imagine a line across the middle of the screen's box.

Loop.

Draw the line.

Refresh the screen.

Darken the current color about 3 percent.

Move the line up 1 pixel.

If the line is above the screen's box's top, break.

Repeat.

To draw the sun:

Pick a spot anywhere in the top middle 1/4 of the screen's box.

Make a dot between 1/4 inch and 1 inch wide.

Center the dot on the spot.

Draw the dot with the lightest yellow color.

To draw the birds:

Pick a spot in the screen's box about 1 inch above the middle.

Use the black pen.

Loop.

Move to the spot.

Face east.

Pick a width between 1/8 inch and 1/4 inch.

Draw a quarter circle given the width.

Turn around.

Draw another quarter circle given the width.

Move the spot about 1/2 inch in any direction.

Add 1 to a count. If the count is 3, break.

Repeat.

To draw the sand:
Use the lightest orange pen.
Imagine a line across the middle of the screen's box.
Loop.
Draw the line.
Refresh the screen.
Darken the current color about 3 percent.
Move the line down 1 pixel.
If the line is below the screen's box's bottom, break.
Repeat.

Note the seamless integration of vector graphics and turtle graphics. Here's the kind of artwork that program produces:

