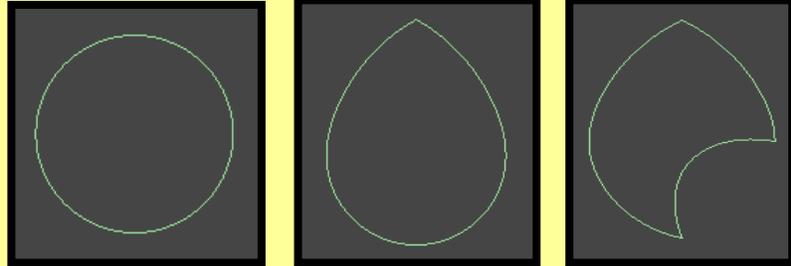# Power Circle Tool

In this tutorial, you will learn how to create a Power Circle and be shown how to:
- **Edit Control Points and Handles.**
- **Edit Parametric Settings.**
- **Create 5 different types of Circles.**

Tool Used In This Tutorial

This tutorial will be accomplished with the following tool:

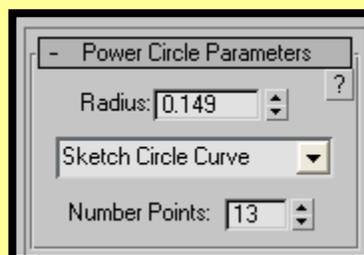Power Circle tool **(Pwr_Circle).**

Creating Power Circles

In this section we will discuss how to edit the:
- A) Sketch Circle curve
- B) Single Bezier curve
- C) NURBS curve
- D) Bezier C1 curve
- E) Bezier C1 Segment

A) Sketch Circle Curve

Let's create a "Sketch Circle Curve".

1) Access the Power Circle tool .

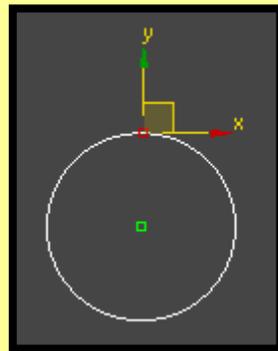2) Under the Power Circle Parameters roll out, select the "Sketch Circle Curve" curve type.

← Curve Type

3) Click and Drag in a viewport. A single Circle shape will appear with the pre-defined "Sketch Circle Curve" curve type.
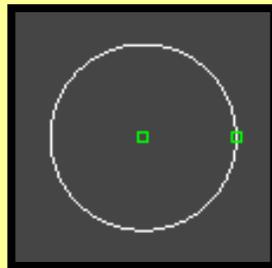
- The default "Sketch Circle Curve" uses 2 points (Center Point and Point on the Circle).
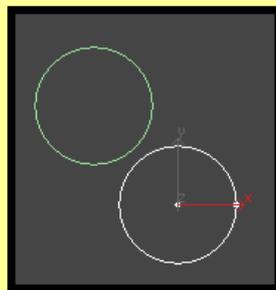

Point on the Circle
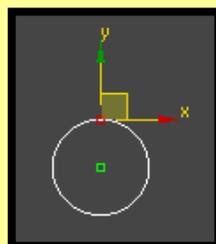
Center Point

- You could have also Click once in a viewport. A single Circle shape will appear with the "pre-defined" Circle parameter settings. This execution applies to all the Power Circles.

- Once you create a circle, by default, the Power Circle tool is still active. Without deselecting the Power Circle tool, click again in a viewport. A second Circle shape will appear with the same defined parameters as the previous Circle. This execution applies to all the Power Circles.
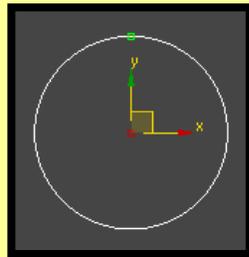

4) Select the point on the edge of the Circle. By moving this point, it will cause the circle to increase or decrease in size.
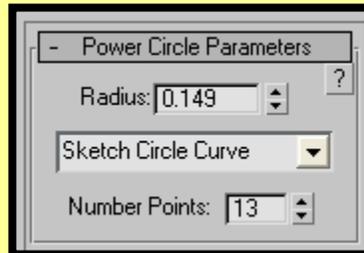

Point on the Circle Edge

5) Select the "Center Point" of the Circle. By moving that point, it will increase or decrease the size of the selected circle. As you move the "Center Point", the circle will revolve around the vertices on the Edge of the Circle.

Point on the Circle Edge

Center Point

6) While the circle is selected, you can adjust the parameter settings to further influence the shape of your circle.
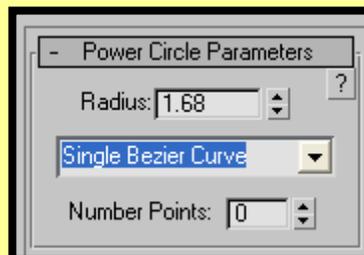

Radius

Curve Type

• The "Number Points" option has no effect on a "Sketch Circle Curve".

B) Single Bezier Curve

Let's create a "Single Bezier Curve".

1) Access the Power Circle tool ⌀ .

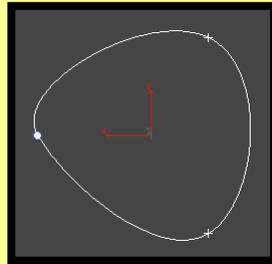2) Under the Power Circle Parameters roll out, select the "Single Bezier Curve" curve type.

Curve Type

3) Click and Drag in a viewport. A single Circle shape will appear with the pre-defined "Single Bezier Curve" curve type.
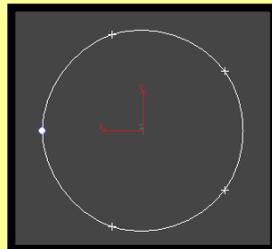
- The default "Single Bezier Curve" contains a bezier curve with 3 "Smooth" points. You can change the number of "Smooth" points by adjusting the "Number Points" spinner. (This example uses 5 number points).
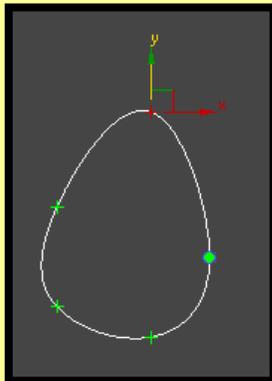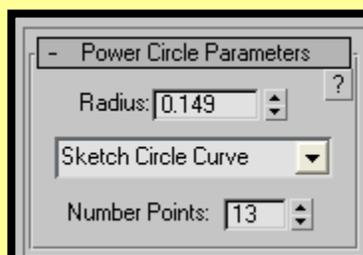
3 Smooth Points

Number Points: 5

Number Points

5 Smooth Points

4) Select a smooth point on the edge of the Circle. By moving that point, it will create a warping effect on the circle.

5) While the Single Bezier curve is selected, you can adjust the parameter settings to further influence the shape of your circle.
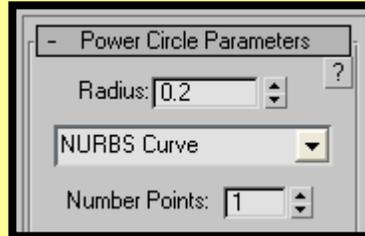
Power Circle Parameters

Radius: 0.149

Radius

Sketch Circle Curve

Curve Type

Number Points: 13

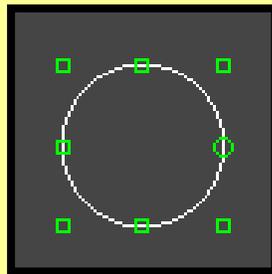**Number Points**

Let's create a "NURBS Curve".

1) Access the Power Circle tool [icon].

2) Under the Power Circle Parameters roll out, select the "NURBS Curve" curve type.
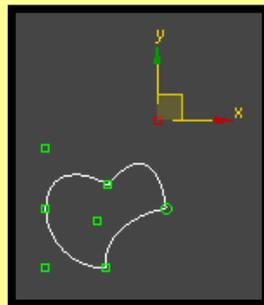

← **Curve Type**

3) Click and Drag in a viewport. A single shape will appear with the pre-defined "NURBS Curve" curve type.

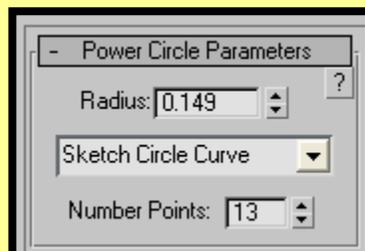- The default "NURBS Curve" contains a rational sketch NURBS curve with 9 control points.

← **9 Control Points**

4). By moving the control points, you can create a wide variety of shapes.

5) While the NURBS circle is selected, you can adjust the parameter settings to further influence the shape of your circle.
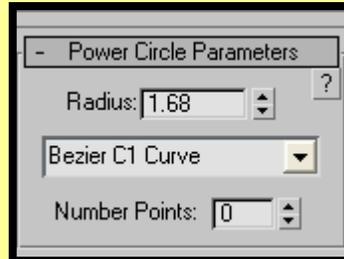

← **Radius**

← **Curve Type**

- The Number Points option has no effect on a "NURBS Curve".

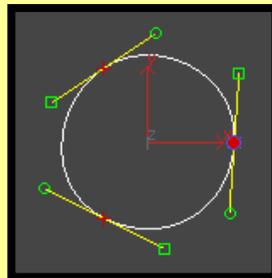## D) Bezier C1 Curve

Let's create a "Bezier C1 Curve".

1) Access the Power Circle tool ⌀ .

2) Under the Power Circle Parameters roll out, select the "Bezier C1 Curve" curve type.

◄——— Curve Type

3) Click and Drag in a viewport. A single Circle shape will appear with the pre-defined "Bezier C1 Curve" curve type.
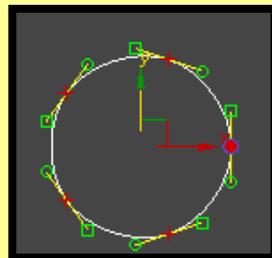
- The default "Bezier C1 Curve" contains a single Bezier Curve with three "C1" Points. You can change the number of "C1" points by adjusting the "Number Points" spinner. (This example uses 5 number points).
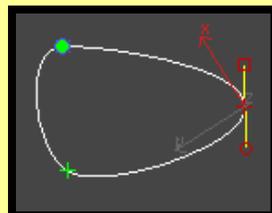

◄——— 3 C1 Points

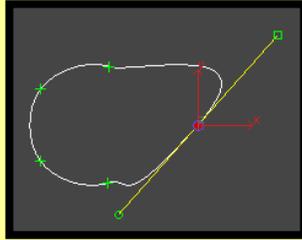**◄——— Number Points**

◄——— 5 C1 Points

4) Select a C1 point on the edge of the Circle. By moving this point, it will create a warping effect on the circle.
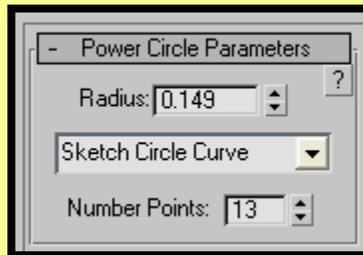
D) Bezier C1 Curve

5) You can also manipulate the Control Handles by click and dragging.

6) While the Bezier C1 curve is selected, you can adjust the parameter settings to further influence the shape of your circle.
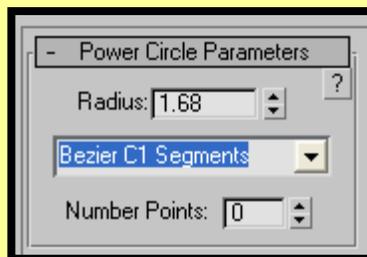

Radius

Curve Type

Number Points

E) Bezier C1 Segment

Let's create a "Bezier C1 Segment".
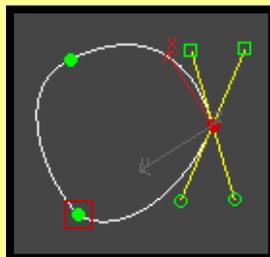
1) Access the Power Circle tool.

2) Under the Power Circle Parameters roll out, select the "Bezier C1 Segment" curve type.

Curve Type

3) Click and Drag in a viewport. A single Circle shape will appear with the pre-defined "Bezier C1 Segment" curve type.
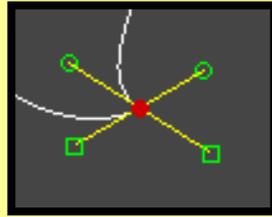
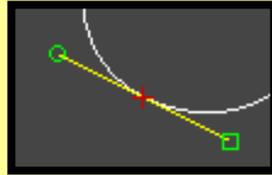- The default "Bezier C1 Segment" curve contains Three "Multiple Bezier C1 Curve" points.

3 "Multiple Bezier Curves" points

• "Multiple Bezier Curves" have <u>Two</u> sets of control handles instead of <u>One</u>.
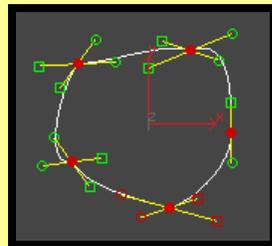
"Multiple Bezier C1 Curve" point

"Bezier C1 Curve" point

• You can change the number of "Multiple Bezier Curves" points by adjusting the "Number Points" spinner. (This example uses 5 number points).
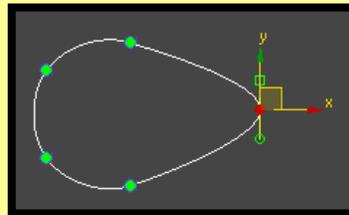
Number Points: 5
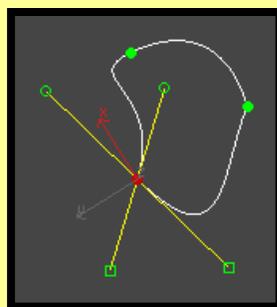
5 Number Points

5 "Multiple Bezier C1 Curve" points

4) Select a "Multiple" C1 point on the edge of the Circle. By moving that point, it will create a warping effect on the circle.

5) You can also manipulate the Control Handles of the "Multiple Bezier C1 Curve" to create some interesting effects.

Summary

In this tutorial, you were shown how to create Power Circles using:

- Sketch Circle curve
- Single Bezier curve
- NURBS curve
- Bezier C1 curve
- Bezier C1 Segment

Also, shown how to modify circle shapes through control points and parameter settings.

 Power Circle tool **(Pwr_Circle).**