BlocksCAD: Making a Birthday Cake and Candles
(beginner and advanced)

In the beginner part of this guide you will create a two layered birthday cake and translate candles to fit on top of it. In the advanced part of this guide you will create a two layered cake using a radial loop for placing a larger amount of candles as a more effective method.

Note: be sure to render the design at every step!

Making the Birthday Cake (beginner)

1. Start from the cake. Get a cylinder and change its dimensions.

   ![BlockCAD Interface](cylinder radius1 20 lock radius2 20 height 15 not centered)

2. Change its color.

   ![BlockCAD Interface](color)

3. Now create the frosting. Duplicate the last cylinder block and change its height.

   ![BlockCAD Interface](cylinder radius1 20 lock radius2 20 height 15 not centered)

   Note: when you render your design at some points including this point, you might not be able to see the new shapes you created since the older ones might be overlapping them. You can temporarily disable older blocks in order to see the new ones.
4. Translate the frosting by moving it "up" along the Z axis so that it appears on top of the cake.

5. Change its color.

6. Now create the candles. Get a cylinder block, change its dimensions so that it is tall and thin (do not make it thinner than 2mm if you would like your cake to be printable).

7. Translate the candle to appear on top of the frosting and near the edge of the cake.
8. Duplicate this block three times to create 3 more candles and translate them to different edges of the cake.

9. Change the candles' color.
The finished code and Birthday Cake:
Making the Birthday Cake Candles (advanced)

In order to create the Birthday Cake Candles, you will need to make a Radial Loop with a rotate block, a loop block, and use a variable.

1. Start by creating the cake and frosting as shown in steps 1-7 in the beginner part of this guide.

2. Get a rotate block and temporarily keep the X,Y,Z values set to 0.
3. Get a Loop block from the "Loops" tab

4. Rename the i variable "Candles".
5. Get the "Candles" variable block from the "Variables" tab to represent the Z value of your rotation block.

6. Now set the loop to count from 1 to 360 (degrees) by 40. This will create 9 candles since 360:40=9. By changing this value you can change the number of candles you would like on your cake. I.e. If you want 36 candles on your cake you would change it to 10 since 360:36=10.

7. Add a color block to change the candles' color.
The finished code and Birthday Cake: