**Calculate Marble Information**

Get Pool Data from User

Get Chip Width and Depth from User

Get Chip Data from File

Calculate Volume

Calculate Chip Sales

Display Results to User

**Get Pool Data from User**

Display “Enter Pool Diameter in Feet: “ to user

Get poolDiameter from user

**Get Chip Width and Depth from User**

Display “Enter Chip Width in Feet: “

Get chipWidth from user

Display “Enter Chip Inner Depth in Feet: “

Get chipInnerDepth from user

Display “Enter Chip Outer Depth in Feet: “

Get chipOuterDepth from user

**Get Chip Data from File**

Read chipBagCost from chipFile

Read chipBagVolume from chipFile

Read salesTax from chipFile

**Calculate Volume**

Set poolRadius to poolDiameter / 2

Set totalRadius to poolRadius + chipWidth

Set upperHeight to chipInnerDepth – chipOuterDepth

Set cylinderVolume to Pi \* poolRadius^2 \* upperHeight

Set coneVolume to (1/3) Pi ((totalRadius^2) + totalRadius \* poolRadius + (poolRadius^2)) \* coneHeight

Set upperChipVolume to coneVolume – cylinderVolume

Set lowerVolume to Pi \* totalRadius^2 \* chipOuterDepth

Set lowerPoolVolume to Pi \* poolRadius^2 \* chipOuterDepth

Set lowerChipVolume to lowerVolume – lowerPoolVolume

Set totalChipVolume to upperChipVolume + lowerChipVolume

**Calculate Chip Sales**

Set totalBags to integer totalChipVolume / chipBagVolume [Round Up]

Set subTotalCost to totalBags \* chipBagCost

Set totalCost to subTotalCost \* (1 + salesTax)

**Display Results to User**

Display “Number of Bags Needed: “ + totalBags + “ bags” to user

Display “Overall Cost: $” + totalCosts