

BDS DESIGN DAY

Today, we are constructing a geodesic dome. Many different types exist out there, and the one we're making is called a 3v 5/9 Icosahedron Dome. This version has 165 total members and 61 points of connection. Our dome will be 16 feet in diameter, and more than 9 feet tall.

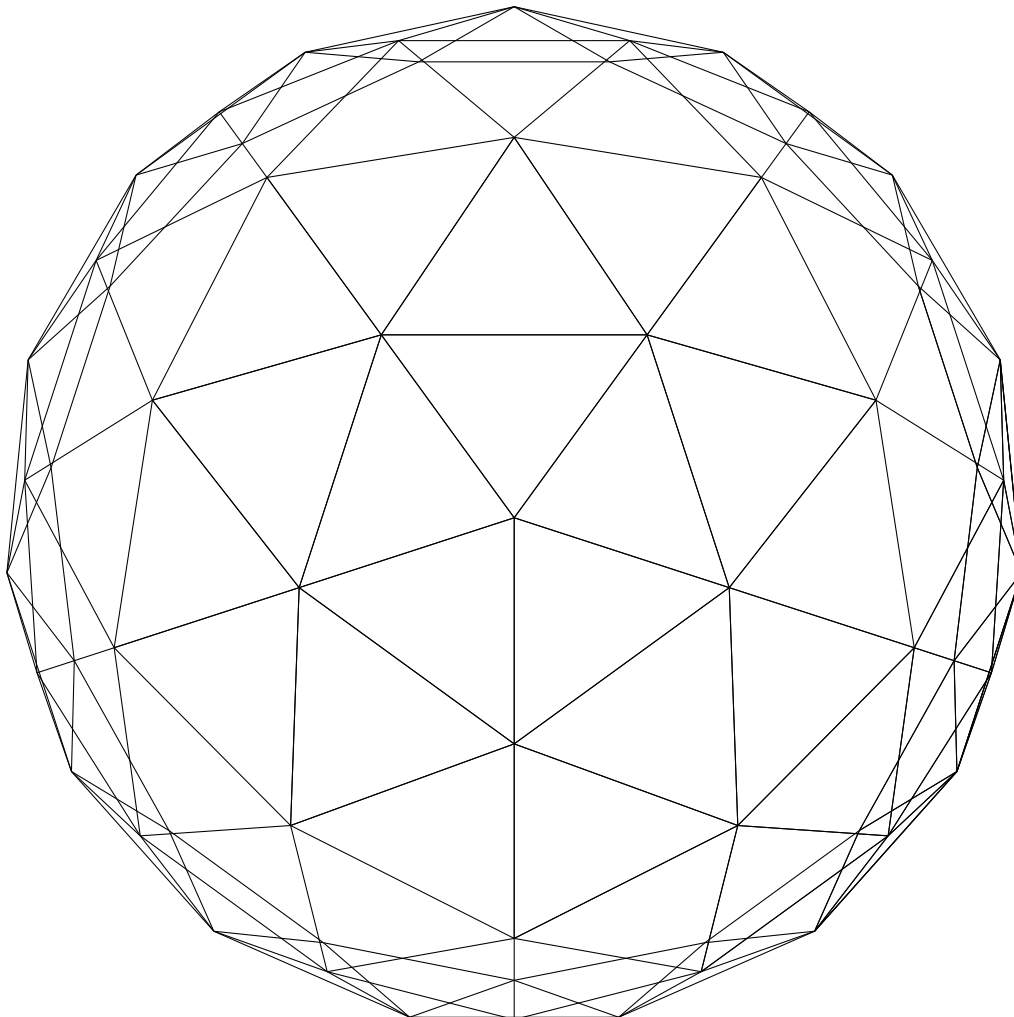
We will form five groups and will be working in teams to accomplish parts of the dome that will be added to form the whole structure. We'll be working with bamboo stakes, rubber bands, and cable ties to create the final structure, but we're going to start with toothpicks and marshmallows.

In your small teams, we'll make a scale model to use as reference (and practice) for making the full-scale object. Designers work this way often and it is a great way to see the whole scope of a project in a scale that makes sense.

In the directions that follow, solid lines are members you build in each module. Dashed lines show where you'll connect to a piece that is already built.

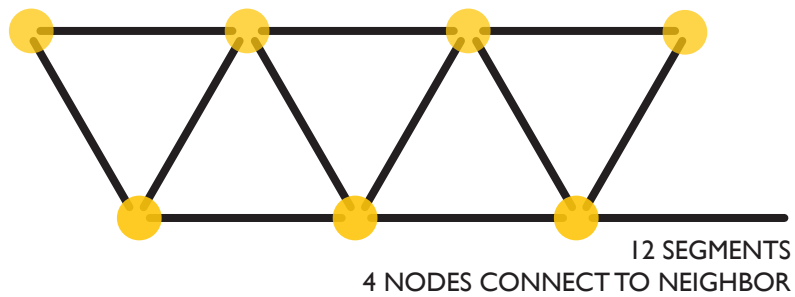
You've been given 33 bamboo sticks. Six of them are specially marked with a red line. These members make part of a special shape, in step two and four, and are shown as a solid yellow line.

Have fun while you work - ask questions of the volunteers - and enjoy the experience!

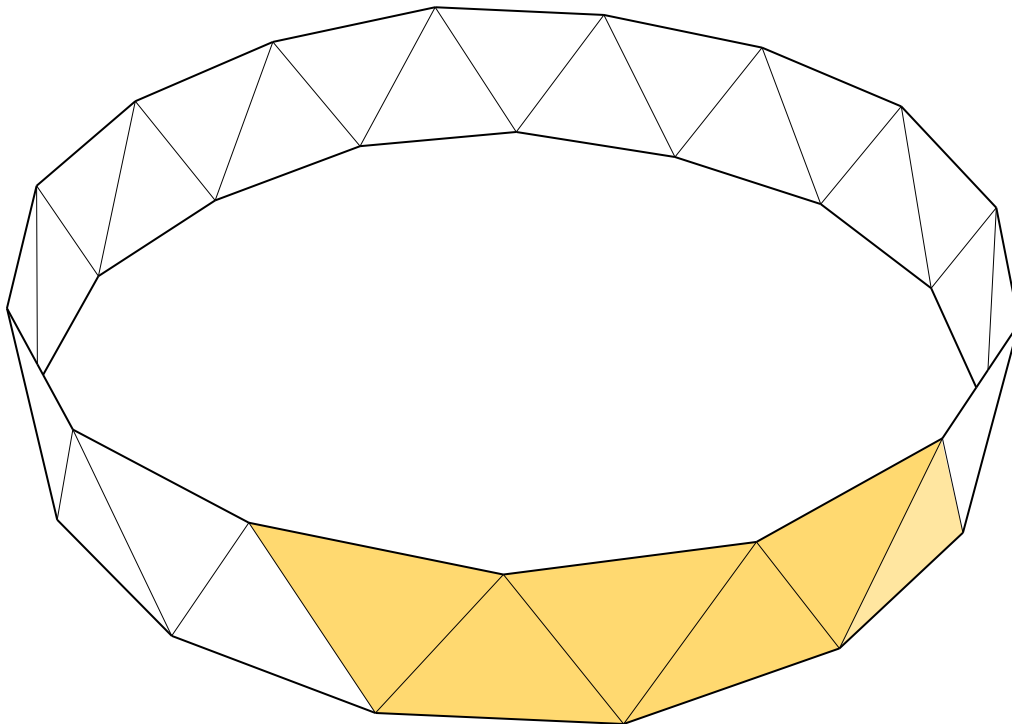


STEP ONE

EACH TEAM CREATES ONE:



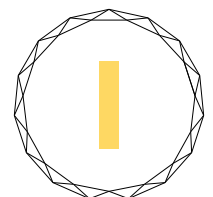
ASSEMBLE FIVE UNITS TOGETHER



REINFORCE BOTTOM JOINTS

CREATE RIGID JOINT WITH CABLE TIES WHERE NO NEW JOINT WILL OCCUR.

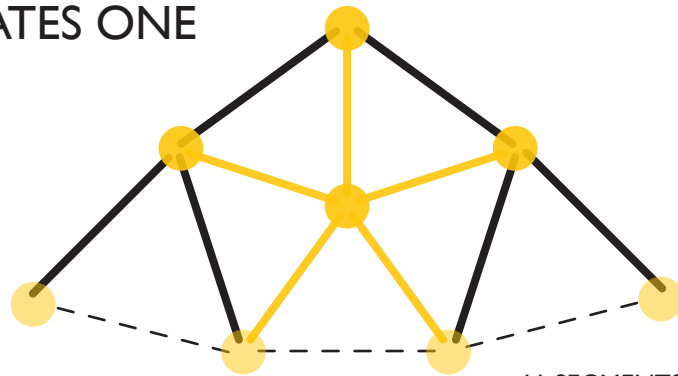
MARCH 8, 2014



ZIGER/SNEAD

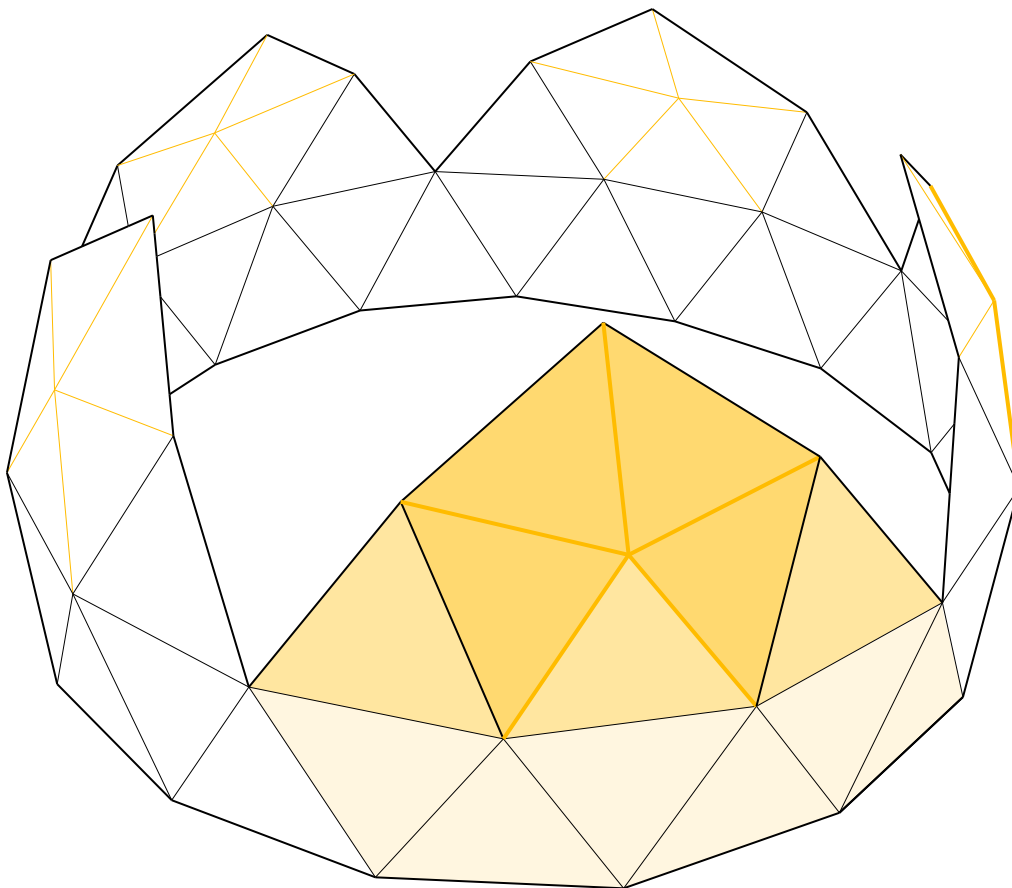
STEP TWO

EACH TEAM CREATES ONE



11 SEGMENTS
4 NODES CONNECT TO STEP ONE

ATTACH ALONG DASHED LINE
TO LARGE STRUCTURE



REINFORCE LOWER JOINTS

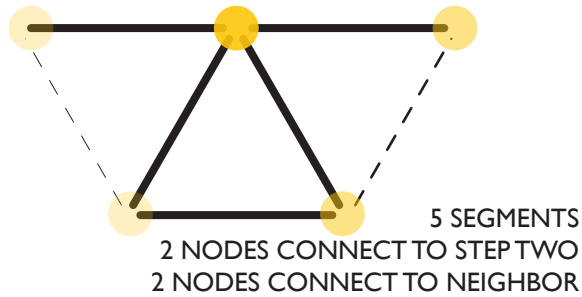
MARCH 8, 2014



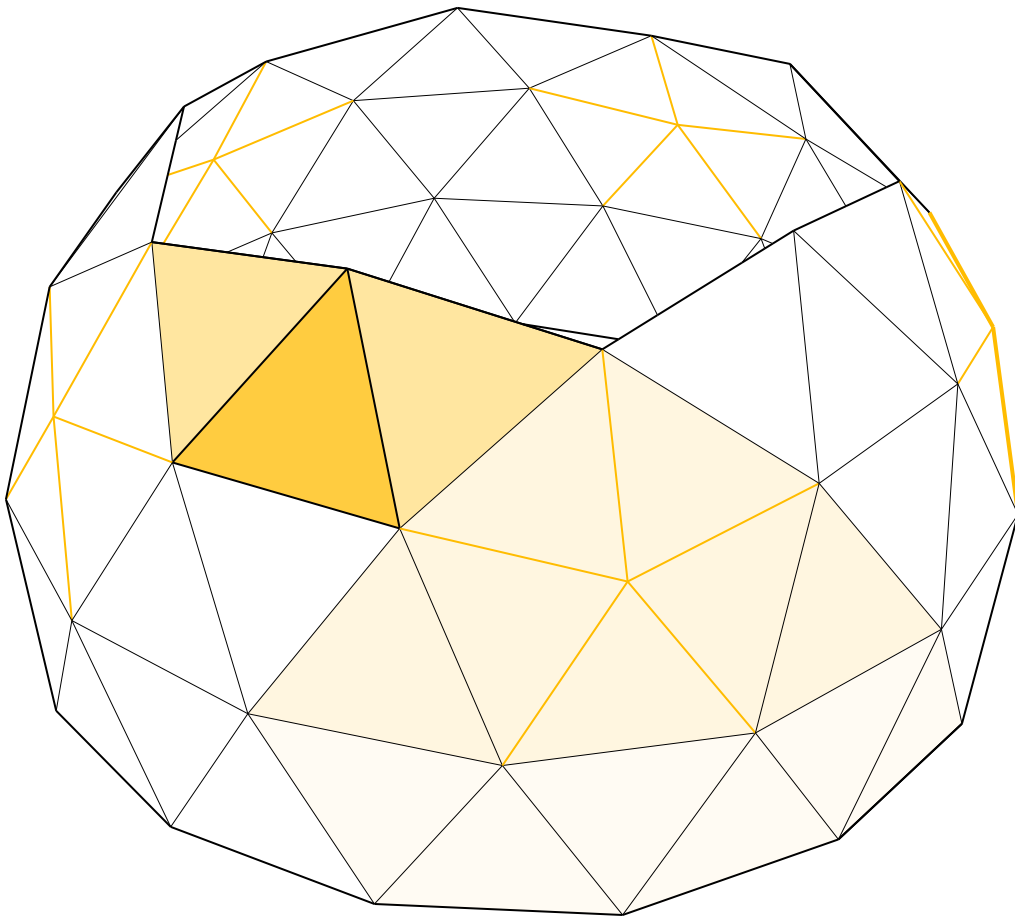
ZIGER/SNEAD

STEP THREE

EACH TEAM CREATES ONE



ATTACH ALONG DASHED LINE
TO LARGE STRUCTURE

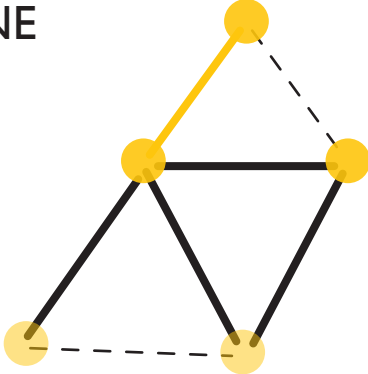


REINFORCE LOWER JOINTS



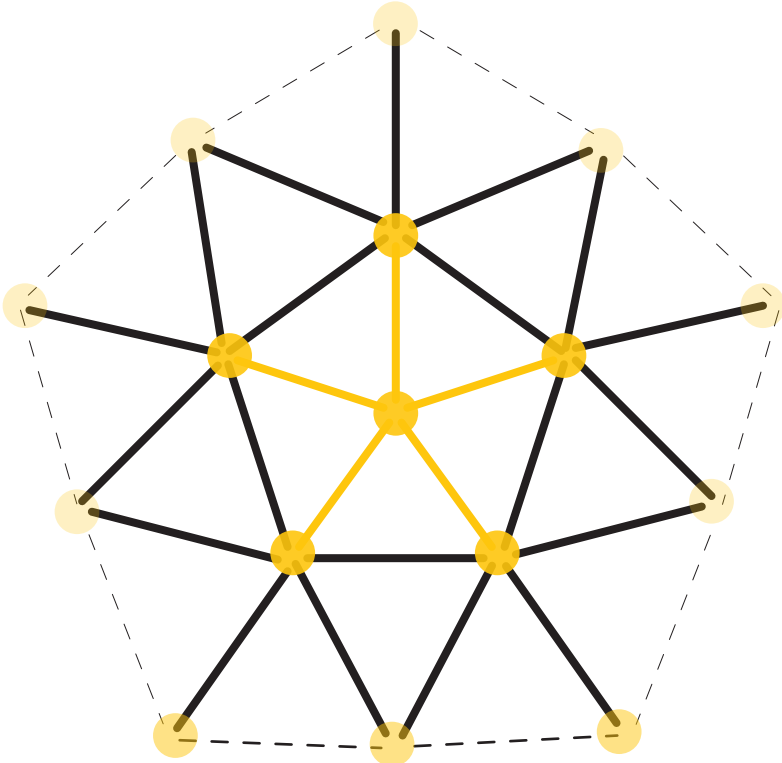
STEP FOUR

EACH TEAM CREATES ONE



5 SEGMENTS
2 NODES CONNECT TO STEP THREE
2 NODES CONNECT TO NEIGHBOR

ALL TEAMS COMBINE TO
CREATE CAP

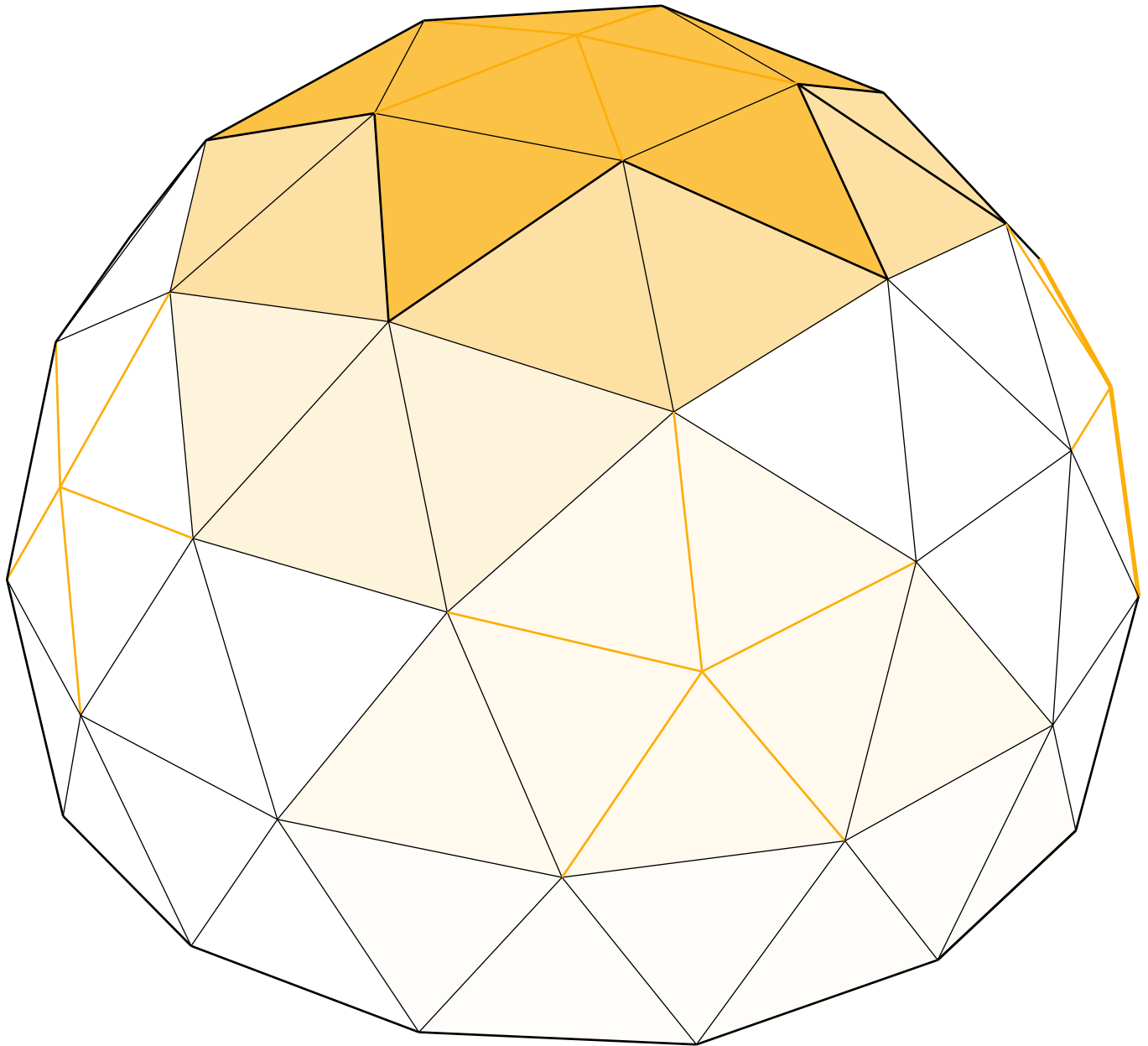


25 SEGMENTS
10 NODES CONNECT TO LARGER ASSEMBLY



STEP FIVE

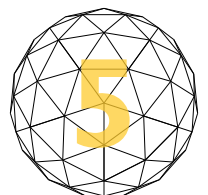
ALL TEAMS RAISE CAP INTO PLACE



165 SEGMENTS
61 NODES

REINFORCE ALL JOINTS

MARCH 8, 2014



ZIGER/SNEAD