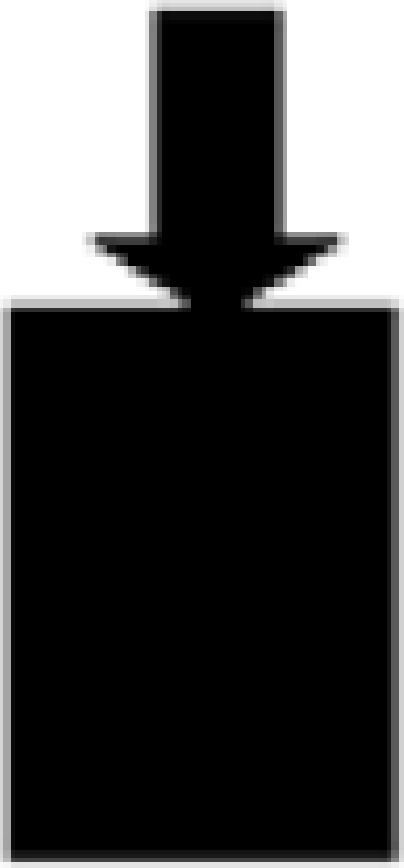
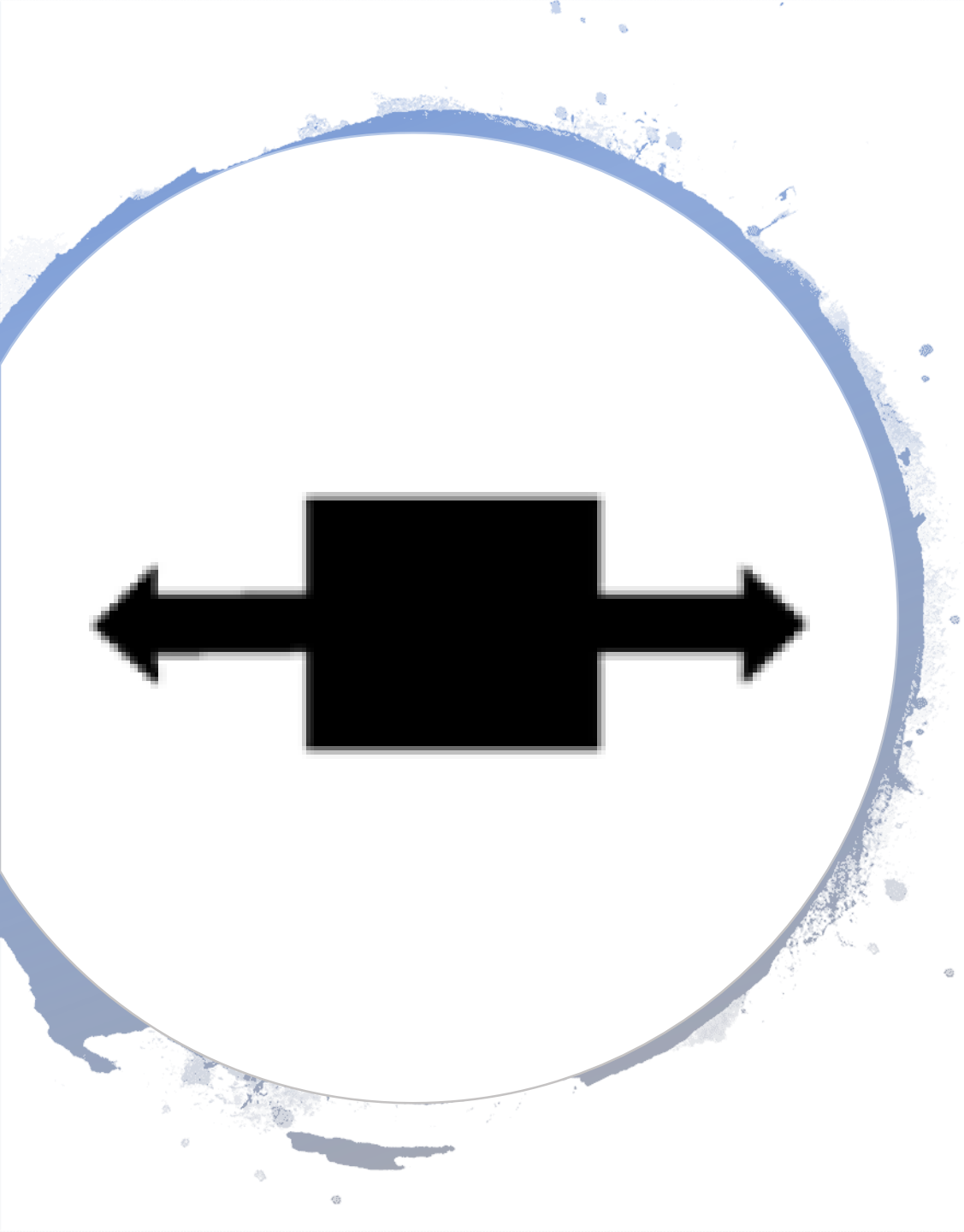


# Five Forces of Spaghetti



Load is applied to the top of the structure

# Compression



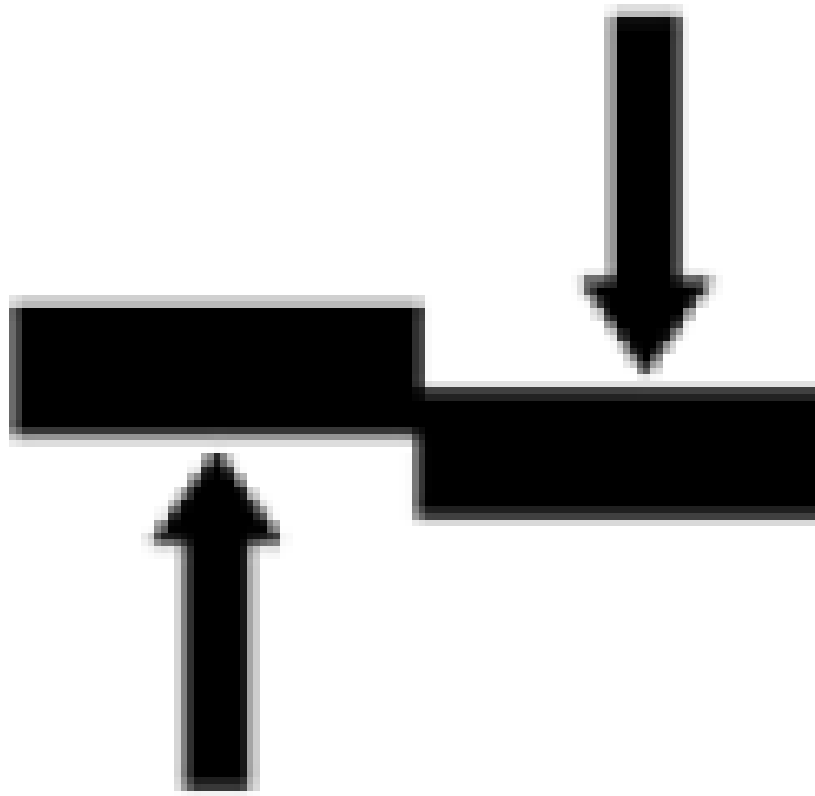
# Tension

- Load is applied along the structure in a pulling action



# Bending

- Like a bookshelf loaded down with heavy books



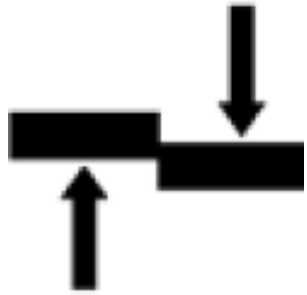
# Shear

- When forces are exerted on the same plane but opposite directions



# Torsion

Forces that twist the structure apart



**Shear**



**Tension**



**Compression**



**Torsion**



**Bending**

# Five Forces

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# Spaghetti Challenge

Groups of 3-5

Materials: 25 strands of spaghetti,  
1 yard tape, 1 marshmallow

Goal: construct the tallest spaghetti  
tower which can support a  
marshmallow