LEGO CONSTRUCTION!

AKA How I Learned to Stop Worrying and Drop the Bot
AIMS

• Construct a chassis to withstand the dreaded 3-foot drop test
• Complete a robot which shall withstand the trials of competition
• Learn general mechanical engineering principles
• Examine the parts given to you
Legos

• Legos are plastic! They bend!
• Gearboxes and other kinetic parts do not like bending
• Construction of rigid chassis and gearbox and tight motor housings are essential
• Certain Lego parts are MUCH BETTER for given tasks than others
Chassis Construction

• Use beams (1 x something)
• Longer is better
• Don’t be frugal
• Plates will not “glue” your robot together by themselves
• For horizontal and vertical support, make your chassis at least 2 beams high and 2 beams wide
• BRACE FOR IMPACT
Bracing

Use BLACK pegs
• Use spacers to ensure gears don’t slide
• Rigid gearbox and motor enclosure to ensure proper connection
• (Don’t grind your gears)
Wheels

• If possible, enclose your wheels
• For unpowered, non-steering wheels, use casters or tires without rubber (to decrease friction)
• Use large rear wheels, smaller front wheels (balance)
• You CAN use the belt (like a tank), but not recommended
Auxiliary Motors

- Servos usually do not require gearing.
- Use tape and tight motors housings.
- If need be, chains can connect gears across the robot but are hard to use.
- Worm gears not recommended (inefficient, wear heavily).
Remember

• Legos are designed with specific ratios in mind, so if things don’t fit perfectly, don’t try to force it.
• Building takes time; if possible, make a code-tester robot.
• Brace your chassis with black pegs (grey pegs are loose).
• Three feet hath slain many a robot – don’t let the fall befall yours!