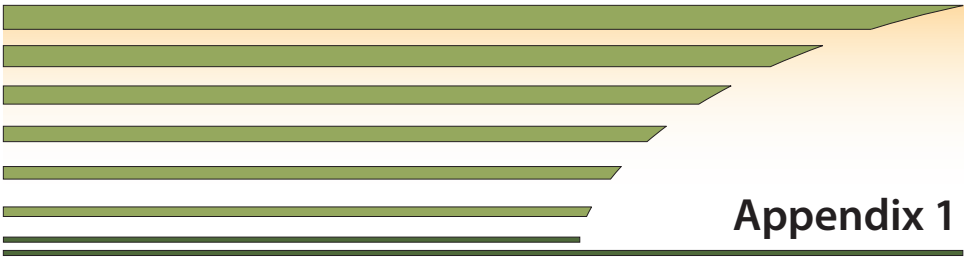


Appendix 1

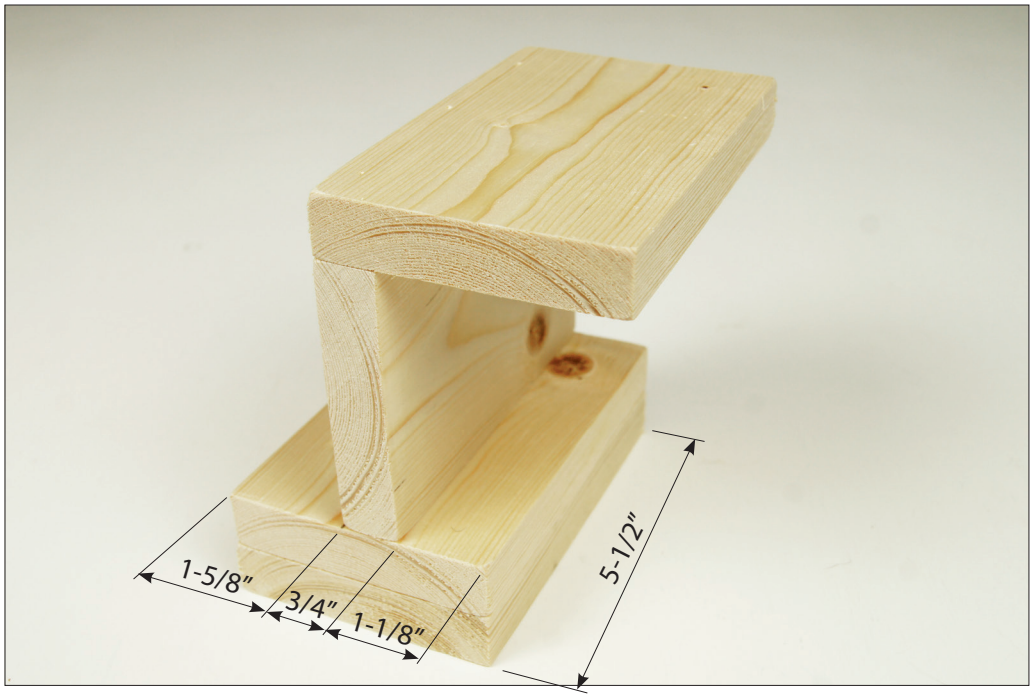
Physical Science Special Parts Kit
Item Specifications

General

1. All holes must be drilled with a drill press (no hand-held drilling).
2. All cuts in metal parts to be straight, clean and perpendicular to the part.
3. All edges, corners and surfaces of wooden items sanded smooth, to be free of burrs and splinters.
4. All edges and corners of metal items smoothed just enough to remove sharpness and burrs to prevent cuts, but still retaining squareness of corner. Surfaces to be free of major gouges or imperfections (even though there are some gouges visible in the sample photos). The single steel part is to be free of rust, wiped with light oil and bagged separately.
5. All wood items must be cleaned with compressed air to be free of wood dust.
6. All metal parts wiped thoroughly with solvent and cleaning rag to be free of metal particles.
7. Each set of metal parts to be supplied in two sealable sandwich bags, one for the steel part and one for the other four parts.
8. All parts to be clean and free of pen and pencil marks, metal marker marks, etc.
9. No finishes are to be applied to any items.

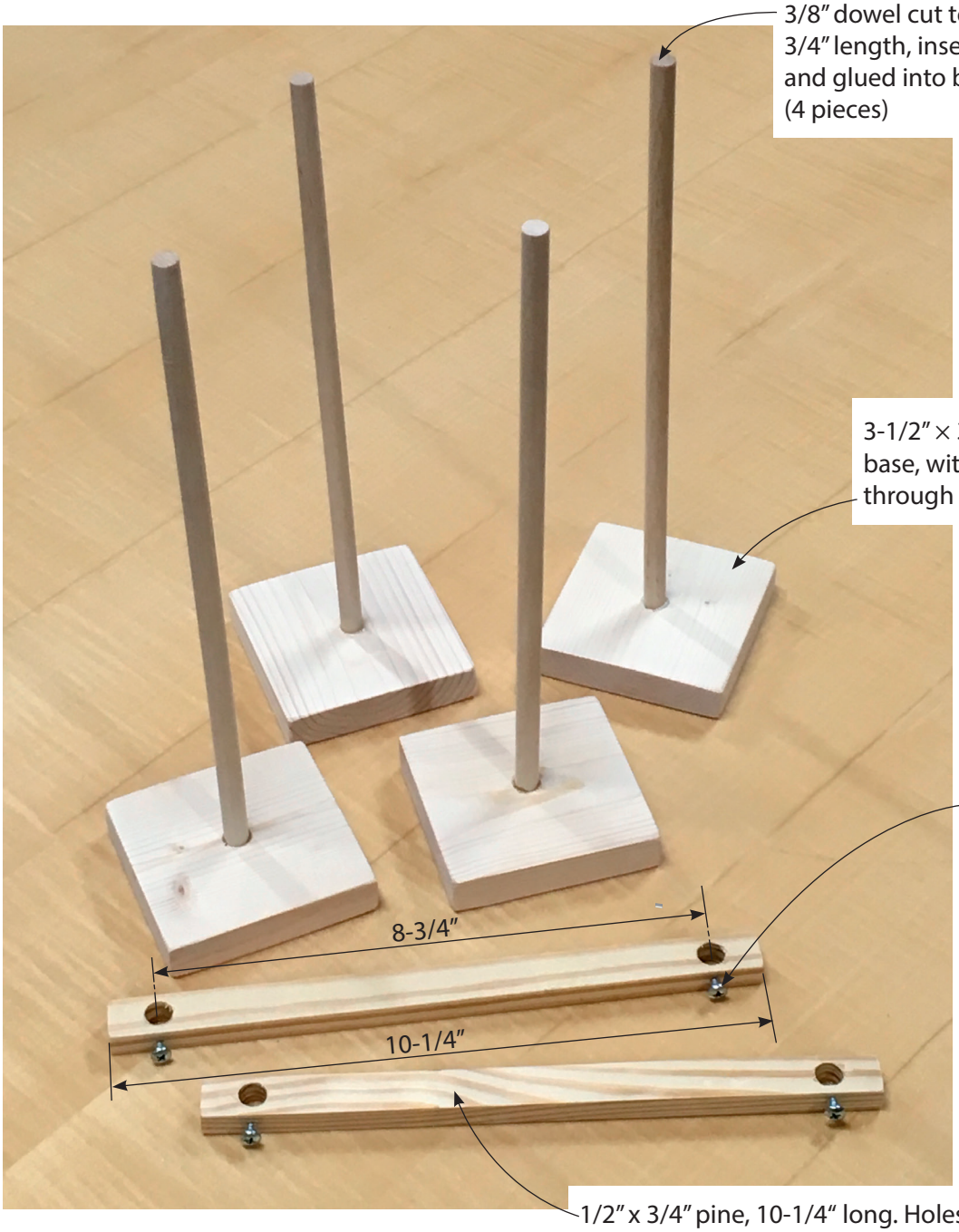
Item 1: Hot Wheels Track Clamp Support Base

Constructed of 1 × 4 pine. Joints are glued and fastened with finishing nailer with 1-1/2" finishing nails. All edges, corners and surfaces smoothed. Base is two layers of 1 × 4.



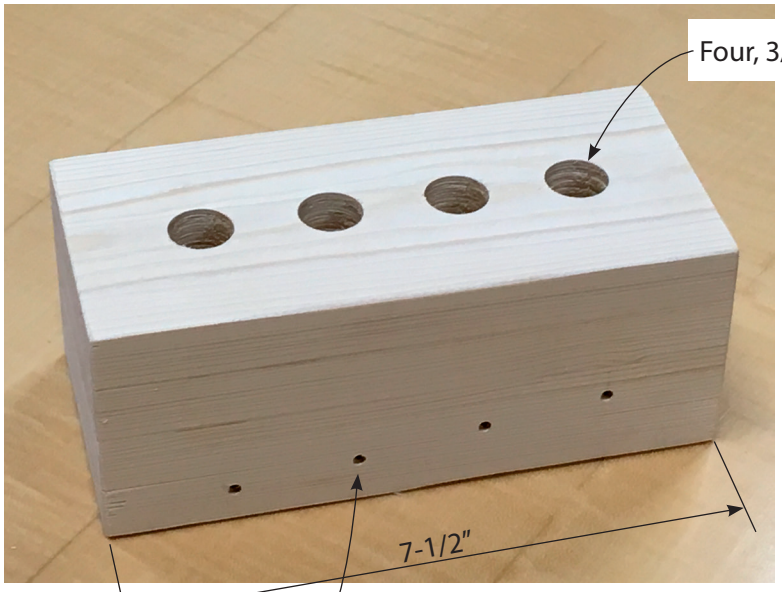
Item 2: Double Support Stand with Adjustable Crosspiece

This item consists of six separate pieces: four support stands and two adjustable cross pieces. Support stands are constructed of a 1 × 4 pine base, with a 3/8″ wooden dowel glued into a 3/8″ hole drilled into the center of the base. Cross pieces are made of 1/2″ × 3/4″ × 10-1/4″ pine. A 27/64″ hole is drilled through each end of the cross piece, each hole center being 3/4″ from the end and centered between the edges of the wood. One #8 × 3/4″ sheet metal screw is screwed into the side of each of the holes through a 1/8″ pre-drilled hole. All edges, corners, and surfaces smoothed.

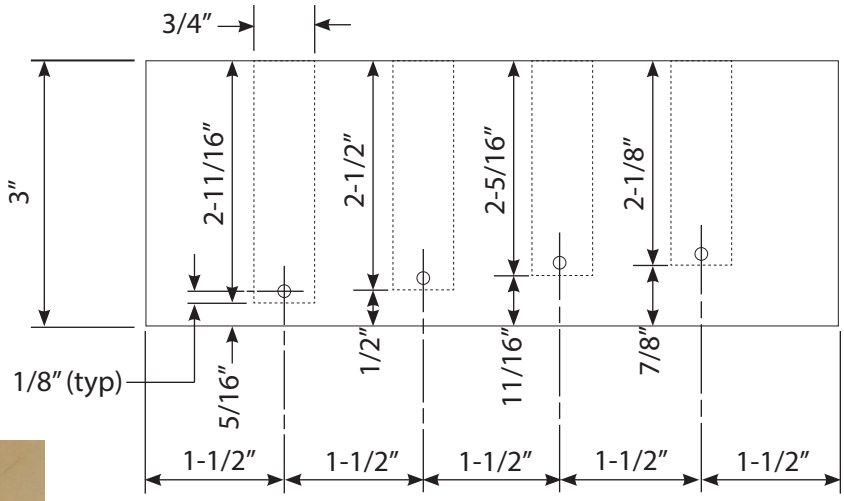


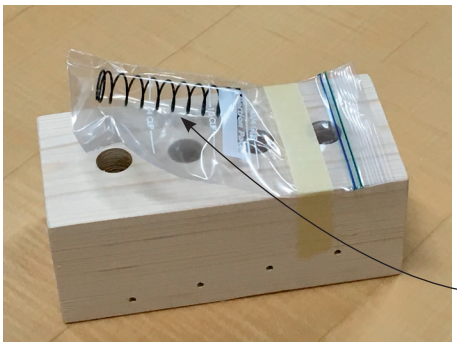
Item 3: Four-Hole Spring Mounting Block + Spring

Constructed of 1 × 4 pine. Block is four layers of 1 × 4 pine glued and nailed together with 1-1/4″ finishing nails. Four 3/4″ holes of varying depth are drilled into the block, evenly spaced and centered between sides. These holes are drilled with a 3/4″ brad-point drill so as to have a flat bottom. A 5/32″ side hole is drilled from one side of the block into each main 3/4″ hole. Centers of side holes are 1/8″ above the bottom of the large hole. All edges, corners, and surfaces smoothed. Final packaging includes placing (1) Traxxas Type 4457 spring in a small ("single portion") bag and taping the bag to the block.



5/32″ side holes drilled from one side only into large hole. Center of each small hole is 1/8″ above bottom of large hole.





Final packaging includes placing (1) Traxxas Type 4457 spring in a small bag and taping the bag to the block.

Item 4: Five Metal Samples

Piece 1: Aluminum angle, T-6061 alloy, 1/8″ thick, 3/4″ × 3/4″ × 2-1/2″ long

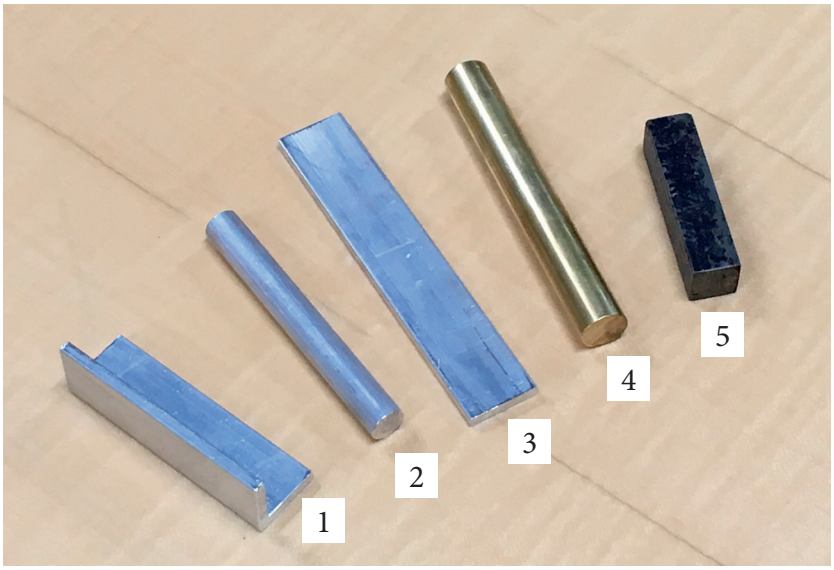
Piece 2: Aluminum rod, T-6061 alloy, 3/8″ diameter by 3″ long

Piece 3: Aluminum flat bar, T-6061 alloy, 1/8″ × 3/4″ × 4″ long

Piece 4: Brass rod, alloy 360, 1/2″ diameter by 3-1/2″ long

Piece 5: Steel flat bar, CF-1018 alloy, 1/2″ × 1/2″ × 2″ long

All edges dressed to remove burrs and sharpness, while preserving squareness as much as possible. Steel sample placed in separate small bag with WD-40 lubricant. The steel bag is placed with the other four samples into a larger bag, which is rolled up, sealed, and taped. Note: T-6063 aluminum alloy is an acceptable substitute for pieces 1, 2 and 3 so long as any parts made of this alloy are labeled as follows: *Composed of T-6063 alloy; density = 2.69 grams per cubic centimeter*



Steel sample placed in separate sealed small bag with WD-40 lubricant.

The sealed steel part bag is placed with the other four samples into a larger bag, which is rolled up, sealed, and taped.