

Handout 4.3: Repair Station Cards and Maintenance Calendar

Name: _____ Date: _____ Team: _____

Directions: Day 1: fill in Parts 1, 2, and 3 during the slides and the tool tray. Day 2: take this sheet to every station, follow the card, do the test, and initial the box. Then fill in the calendar in Part 4.

Word bank in other languages

[Check with a native speaker before printing.]

English	Turkish	Portuguese	Spanish
screwdriver	tornavida	chave de fenda	destornillador
pliers	pense	alicate	alicates (pinzas)
wrench	İngiliz anahtarı	chave inglesa	llave inglesa
level	su terazisi	nível	nivel
tape measure	şerit metre	fita métrica (trena)	cinta métrica
plunger	pompa (lavabo pompası)	desentupidor	destapador (desatascador)
circuit breaker	sigorta (devre kesici)	disjuntor	interruptor (breaker)
filter	filtre	filtro	filtro

Part 1: The seven small jobs

Job	First step	The safety rule	Tool
Change a light bulb			
Reset a tripped breaker			
Unclog a drain (no chemicals)			
Stop a running toilet			
Tighten a loose screw			
Hang something on a wall			
Clean a filter			

Part 2: Tool ID

Write the tool name next to its description, then the job it goes with.

Description	Tool	Job it is for
Tip shaped like a plus sign		
Tip shaped like a flat blade		
Two jaws you squeeze to grip or bend		
One jaw slides to fit any nut		
A bubble in a tube tells you if it is straight		
A metal ribbon that pulls out and snaps back		
A rubber cup on a stick; the toilet one has an extra flap		

Part 3: The troubleshooting process (six steps)

The state's Problem Solving theme gives six steps for fixing something that broke. Write them in plain words, then fill in the running-toilet example.

Step	In plain words	The running toilet
a. Define the problem		The toilet keeps ____ after the flush.
b. What should it do		It should ____ within about a minute.
c. Test to find the cause		Lift the lid. Check the ____ and the ____.
d. Fix it		
e. Check that the fix worked		
f. Stop it happening again		

The five safety rules for Day 2









Day 2: The station cards

Four minutes per station. Everyone performs once. Teammates coach. Initial the box when you pass the test.

Station 1: Drive a screw

Safety: safety glasses on. Fingers behind the screw, never in front of the tip.

1. Look at the screw head. Plus sign means Phillips. Flat slot means flathead. Pick the driver that fills the head.
2. Set the screw tip in a pilot hole. Hold it straight.
3. Push in and turn clockwise (righty tighty). Keep pushing so the driver does not slip.
4. Stop when the head is flush with the wood. Do not keep going; that strips it.
5. Now take it out: turn counterclockwise (lefty loosey). **Test:** the head sat flush and the driver never slipped out. My initials: _____

Station 2: Plunge a drain

Safety: hands dry before you touch anything else. Never plunge a drain that has had chemicals in it.

1. Put the cup of the plunger over the drain so it covers it completely.
2. Make sure there is enough water to cover the cup. The seal needs water.
3. Push down slowly to push the air out, then push and pull straight up and down six times, hard.
4. Pull the plunger off. In a real drain, run hot water to see if it flows. **Test:** you felt the seal grab and the push-pull got harder, not easier. My initials: _____

Station 3: Read a tape measure

Safety: let the tape back in slowly. It snaps.

1. Hook the end on the edge of the thing you are measuring, or line it up with the start of the line.
2. Read the big numbers for inches. The longest marks between numbers are half inches. The next longest are quarters. The next are eighths.
3. Write each measurement to the nearest eighth of an inch.

Line or object	Measurement
Line A	
Line B	
Line C	
Line D	

Line E	
The book (long side)	
The box (tall side)	

Test: within one eighth of an inch of the key at the station. My initials: _____

Station 4: Use a level and hang a frame

Safety: the level is a tool, not a sword. Two hands.

1. Set the level on top of the bracket. Watch the bubble.
2. Pivot the bracket until the bubble sits exactly between the two lines.
3. Mark the second screw hole with a pencil.
4. Now the frame: hang it on the nail, set the level on top, nudge until the bubble is centered. **Test:** bubble between the lines on both. My initials: _____

Station 5: The breaker and the bulb

Safety: nothing at this station is live. At home, a breaker panel is the one place you never put a wet hand or a tool.

1. Find the tripped breaker in the photo. It is the one sitting in the middle, not fully ON and not fully OFF.
2. Say the reset in order: push it fully OFF first, then push it ON.
3. If it trips again right away: stop. Unplug what you just turned on and tell an adult. Something is drawing too much.
4. The lamp: the switch is off. Is the bulb cool? Read the label on the socket: max _____ watts. Turn the old bulb out counterclockwise. Turn the new LED in clockwise until snug, not tight. **Test:** you said “off, then on” in that order, and the new bulb is snug. My initials: _____

Part 4: The maintenance calendar

Put every task from the bank into a month. Some go in more than one. Then pick three and say why they go where they go.

Task bank: test smoke and CO detectors (monthly); check or change the furnace filter (every 1 to 3 months); clean the range hood filter (monthly); clean the dryer lint trap (every load) and the dryer vent (yearly); new detector batteries (yearly); clean gutters (twice a year); furnace check (before heating season); reverse ceiling fans (fall and spring); bring in garden hoses and shut off outside water (before the first freeze); salt or sand the steps (winter); check the roof and gutters after winter; test the air conditioner (before it gets hot); check the deck and railing (spring); drain the water heater (yearly); check the fire extinguisher gauge (yearly); replace smoke detectors that are ten years old.

Month	Tasks
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January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Three placements and why:

1. ___ goes in ___ because _____
2. ___ goes in ___ because _____
3. ___ goes in ___ because _____

Grade 8 stretch, cost column: furnace filter \$10 each; detector batteries \$6 a year; gutter cleaning \$150 a visit if hired, free if you own a ladder and an adult does it; furnace check \$120; fire extinguisher \$30 to replace; water heater drain free; roof check \$0 to look, \$200 and up to fix. Add up the year for a family that hires the gutters and the furnace check:
\$_____

Teacher key

Part 1 (accept close wording):

Job	First step	Safety rule	Tool
Light bulb	Switch off	Let it cool; check the max watts on the fixture	Hands, a step stool that is not cracked
Breaker	Find the one in the middle	Fully off, then on; if it trips again, stop	Hands only, dry
Drain	Pull out hair with a plastic drain tool	Never mix chemicals; never plunge after chemicals	Drain tool, plunger
Running toilet	Lift the tank lid	Turn off the water at the valve if it overflows	Hands; a screwdriver for the float screw
Loose screw	Match the driver to the head	Push in while turning; stop when snug	Screwdriver
Hang on a wall	Find the stud or use an anchor	Mark with a level; avoid where wires or pipes run	Stud finder, level, hammer or driver
Filter	Find the arrow (points toward the furnace)	Switch the system off first	Hands

Part 2: Phillips screwdriver (tighten a screw); flathead screwdriver (tighten a screw; pry a paint can); pliers (grip, bend, pull a nail, hold a nut); adjustable wrench (tighten a nut or a bolt, a faucet fitting); level (hang something straight, level a shelf); tape measure (measure a space or a piece before buying or cutting); plunger (unclog a drain; the toilet plunger has the flange).

Part 3: a. name what is wrong; b. name what it should do; c. test to find the cause; d. fix it; e. check that the fix worked; f. stop it happening again. Toilet: keeps running; should stop within a minute; check the chain and the flapper; fix by freeing the chain or reseating the flapper or lowering the float; flush and time it; check the flapper yearly, replace it every few years (\$8). Safety rules: eyes protected at the screw station; no tool leaves its station; nothing is plugged in; dry hands at the drain station; one person works while the team coaches.

Station 3 key: *[Sal: write the five line lengths and the book and box measurements here after you tape them; keep them at eighths, for example 6 3/8 in, 11 1/2 in, 4 7/8 in, 9 1/4 in, 2 5/8 in.]*

Part 4 (accept any month that fits the season; the reasoning is what is scored): detectors monthly, every month; furnace filter every one to three months; range hood monthly; lint trap every load, dryer vent yearly (fall); batteries yearly (many families use the fall clock change); gutters in late fall after the leaves and again in spring; furnace check in September or October; fans in October and April; hoses in October or November before the first freeze; salt in December to February; roof in March or April; AC in May; deck in April or May; water heater any month, once; extinguisher gauge any month, once; ten-year detectors when the date on the back says so.

Three placements: for example, gutters in November because the leaves have fallen; hoses in October because a frozen hose can crack the pipe in the wall; AC in May because you want to find out it is broken before July.

Grade 8 stretch: filters 4 to 12 a year at \$10 is \$40 to \$120; batteries \$6; gutters hired twice \$300; furnace check \$120; extinguisher \$0 if the gauge is green; water heater \$0; roof \$0 to look. Total about \$466 to \$546.