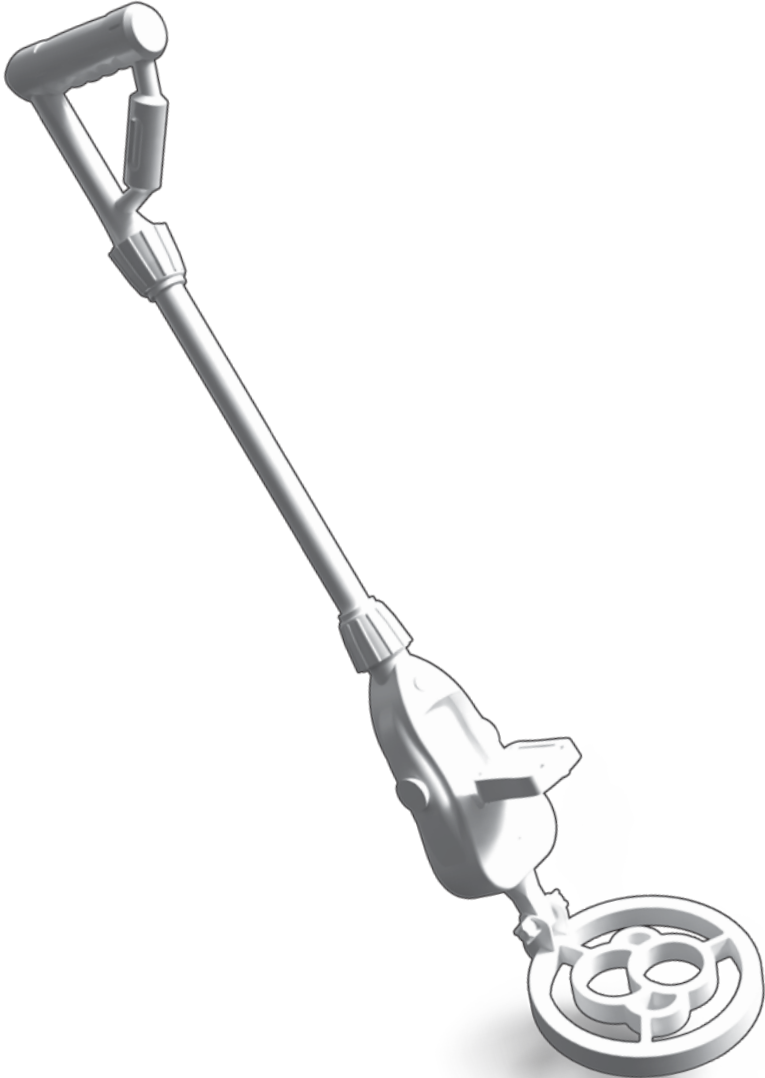


ESSENTIAL STEM TOOLS

METAL DETECTOR

INSTRUCTION MANUAL



THAMES & KOSMOS



SAFETY INFORMATION

Warnings

WARNING! Not suitable for children under 3 years. Choking hazard — small parts may be swallowed or inhaled.

Keep the packaging and instructions as they contain important information.

Battery Safety

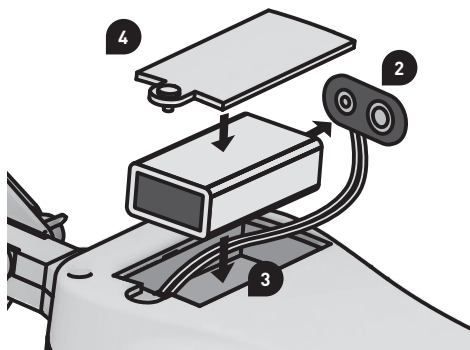
To operate the metal detector, you will need one 9-volt alkaline battery (type 6LR61), which could not be included in the kit due to its limited shelf life. An adult should insert and change the battery. For instructions on how to insert and change the battery, see below.

- Non-rechargeable batteries are not to be recharged. They could explode!
- Rechargeable batteries are only to be charged under adult supervision.
- Rechargeable batteries are to be removed from the toy before being charged.
- Different types of batteries or new and used batteries are not to be mixed.
- Do not mix old and new batteries.
- Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.
- Batteries are to be inserted with the correct polarity. Press them gently into the battery compartment.
- Exhausted batteries are to be removed from the toy.
- The supply terminals are not to be short-circuited.
- Avoid a short circuit of the batteries. A short circuit can cause the wires to overheat and the batteries to explode.
- Avoid deforming the batteries.
- Dispose of used batteries in accordance with environmental provisions, not in the household trash.

Notes on environmental protection: The electronic components of this product are recyclable/reusable. For the sake of the environment, do not throw them into the household trash at the end of their lifespan. They must be delivered to a collection location for electronic waste, as indicated by the following symbol:
Please contact your local authorities for the appropriate disposal location.



INSERTING THE BATTERY



1. Use a small Phillips-head screwdriver to remove the battery compartment cover.
2. Attach a 9 volt alkaline battery (not included) to the battery terminal clip, making sure that the (+) and (-) terminals are properly aligned.
3. Place the battery into the battery compartment.
4. Replace the battery compartment cover and re-install the screw, without over-tightening.

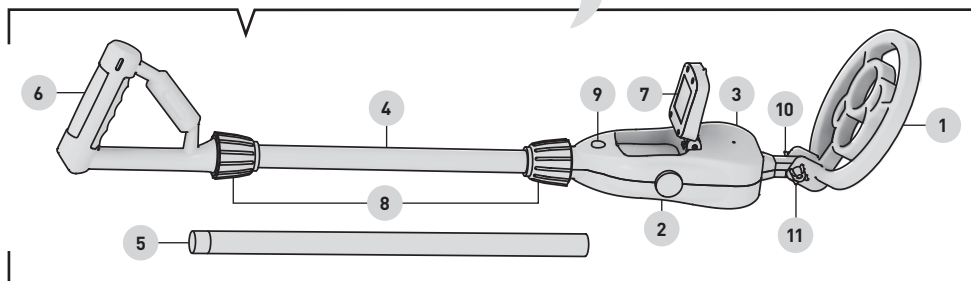


CONTENTS

What's included:

Good to know!

If any parts are missing or damaged, please contact Thames & Kosmos technical support.



No. Description

1	Search coil
2	Battery compartment (on back)
3	Body
4	Short shaft (10.6 in.)
5	Long shaft (15.7 in.)
6	Handle

No. Description

7	Digital display
8	Locking rings
9	Reset/On/Off button
10	Connecting bolt
11	Connecting nut



YOU WILL ALSO NEED:

9-volt alkaline battery (type 6LR61), small Phillips-head screwdriver

INTRODUCTION

Your new metal detector can spark an exciting new hobby and give you a fun activity to do outdoors. The Thames & Kosmos Metal Detector can be used to find lots of kinds of metals, including gold, silver, iron, copper, and nickel. You can search for missing or lost coins, pieces of jewelry, and other metal objects. It can also be used to hunt for antique treasures from long ago.

It is important that you obey all laws when using your metal detector. Using a metal detector is against the law in most parks. If you live in a city or town there may be local laws that tell you where you can use a metal detector. Always ask for permission from the property owner before you do any detecting on private property. Do not trespass on private property.

When you find a metal object you may have to dig a small hole to retrieve it. Keep such holes as small as possible and fill them in neatly when you are finished.

We hope you have lots of fun with this metal detector!

ASSEMBLING THE METAL DETECTOR

1. Hold the connecting bolt firmly as you loosen the connecting nut by turning it counterclockwise. Remove the bolt.

2. Line up the holes on the top of the search coil with the hole through the bottom of the base.

3. Make sure the wire is not blocking the hole. You may need to insert a toothpick or similarly-shaped object into the hole to push the wire to the side.

4. Re-insert the connecting bolt through the hole. Hold it firmly as you install the connecting nut. Turn the nut clockwise until it is snug. If you want to change the angle of the search coil later, you can loosen this connection and then re-tighten it.

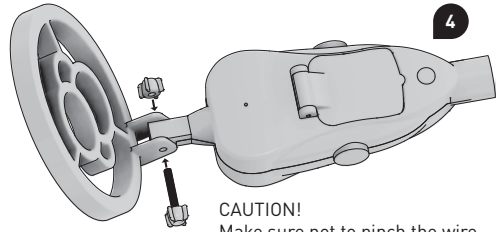
5. Loosen the locking ring located on the metal detector body by turning it counterclockwise.

6. Choose either the short or long shaft. Place the second locking ring as shown.

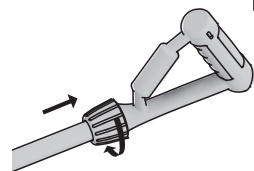
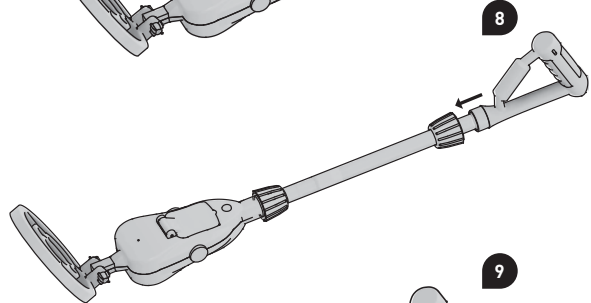
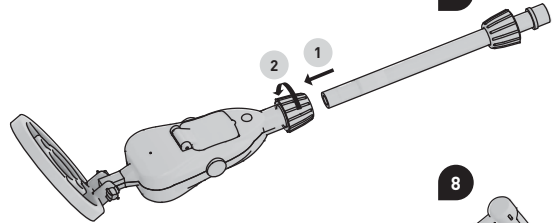
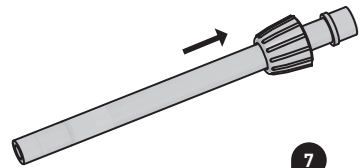
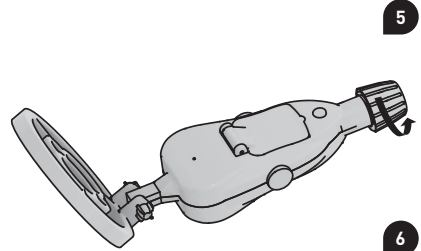
7. Push the shaft all the way into the base, then turn the locking ring clockwise until the shaft is secured tightly.

8. Push the handle onto the top of the shaft.

9. Push the upper locking ring up and turn it clockwise until the handle is secured tightly.



CAUTION!
Make sure not to pinch the wire when installing the bolt.



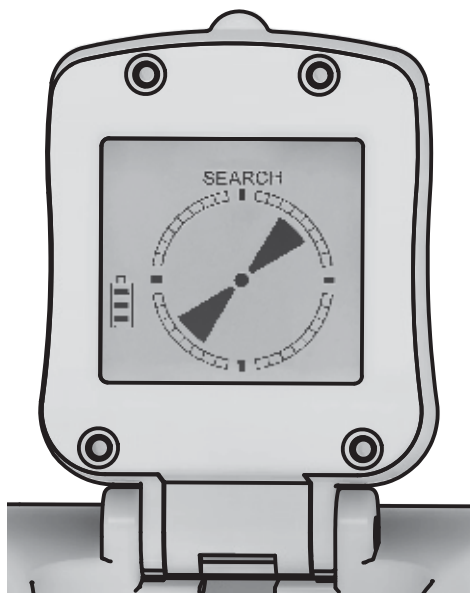
ABOUT THE DIGITAL DISPLAY

Flip up the digital display to see what the Thames & Kosmos Metal Detector is doing. Tuck it down into the base when not in use.

The digital display contains a rotating indicator wheel, a text display, and a battery status display. It has a bright blue backlight to make it clearly visible, even in bright daylight.

While you are searching for a metal object the indicator wheel will rotate, and the text will display "SEARCH". When a metal object is discovered it will stop spinning and the wheel will be complete. The text will display "METAL FOUND".

The battery status display is a series of horizontal lines. When the 9-volt alkaline battery is fresh, all of the lines will be filled in. As the battery power diminishes, the lines will disappear one by one. When only one line is visible, the battery is almost expired and should be replaced with a new alkaline battery before starting a new detecting session.



HOW TO USE YOUR METAL DETECTOR

Press and hold the "RESET/ON/OFF" button for 2 – 3 seconds to start the unit.

Hold the metal detector so that the search coil is in the air, not touching the ground or other objects.

Now, you can see the indicator wheel spinning.

Move the metal detector close to a metal object and you will hear the beeping tone.

Now, swing the metal detector from side to side while keeping the search coil level about 2 inches above the ground.

Move the search coil slowly. If you move too fast you may miss an object. The indicator wheel will be rotating and the text will display "SEARCH".

When the metal detector detects a metal object, it will beep and the indicator wheel will stop rotating. The text will display "METAL FOUND" and you will hear a rapid beeping sound.

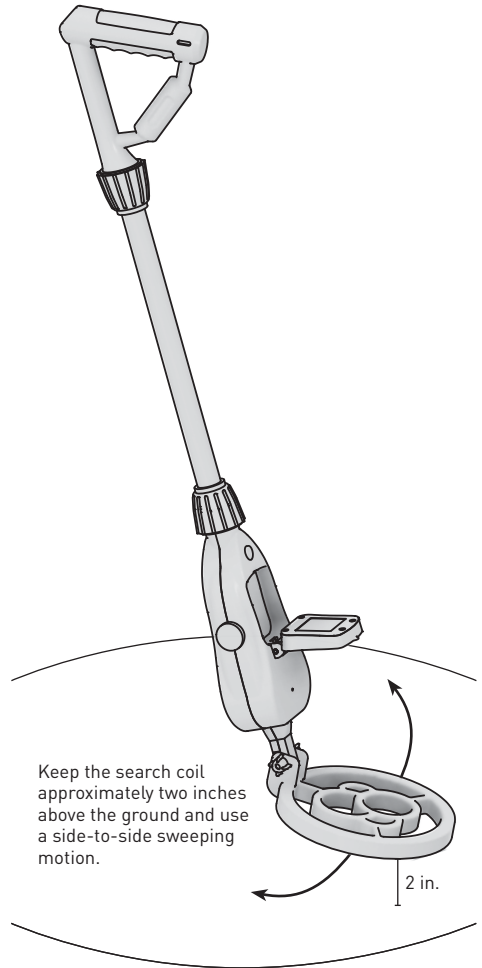
To start another search, quickly press the "RESET/ON/OFF" button to reset the metal detector.

After resetting, move the search coil away from any metal objects for a few seconds.

To turn the metal detector off, hold the RESET/ON/OFF button for 2 – 3 seconds. You will hear two short beeps then the digital display will turn off.

You will find lots of bottle caps, metal pull tabs, and foil wrap. You should collect these and dispose of them in the garbage. Do not be discouraged. Keep searching and you will be sure to find rewarding objects.

CAUTION: Do not put the search coil or base in water. This is not an underwater metal detector and water will damage the device.



WHERE TO USE YOUR METAL DETECTOR

At first, you may want to start using your metal detector at the beach. Beaches are generally cleaner and not as cluttered, so you will hopefully not be overloaded and confused with too many signals. You may want to dig and explore just about everything your detector finds, and it's usually pretty easy to dig in the sand.

Remember to always refill the holes you dig to be respectful to the environment and other people using the space. You don't want to leave holes for others to trip or fall into along your path!

A great time to go treasure hunting is right after a heavy rainfall when the ground is soaked. This is mainly because wet ground is a much better conductor than dry ground, so you have a greater chance of detecting metal objects that are buried deeper under the surface.

If you ever need ideas for locations to use your metal detector, you can search the Internet, local libraries, hobby periodicals, and maps. Old pictures, books, and postcards can provide great tips for finding significant historic places, buildings, or parks.

You also may want to join a metal detecting or treasure hunting club. It's generally easier to hunt with a group than by yourself.

Here are some places you might try searching for buried treasures:

- >> your own front and back yards
- >> around old houses, especially near large trees where people may have sat to rest
- >> playgrounds in parks or around schools (make sure to follow local laws)
- >> near ballfields
- >> along the grassy areas next to sidewalks
- >> under grandstands or bleachers
- >> sites where annual fairs, carnivals or circuses set up
- >> along beaches, or in grassy or sandy areas near swimming pools
- >> local areas where historic events such as battles occurred, or where troops may have traveled or camped
- >> places where people would have walked long ago (ridges, riverbanks, etc.)



THINGS TO REMEMBER

RESPECT OTHERS! Always ask permission of the property owner before searching. Found objects are usually the property of the landowner unless you come to a different agreement. It is a good idea to check current local, regional, and/or national laws. If a find is of significant monetary or historic value you should report it to local authorities as ownership might automatically revert to the government.

RESPECT THE ENVIRONMENT and be thoughtful! It's generally wise to take an extra bag along for any trash you dig up. And it is good practice to remove and properly discard any trash you find, instead of just burying them again for other treasure hunters to find.

Metal detecting is usually forbidden at historic sites and in most parks. Check before detecting.

Some municipalities may require you to obtain a metal detecting license and to display it while detecting. These are usually very inexpensive. Call your local town hall, city hall, or municipal office.

When digging up items, always make the smallest hole possible and return the ground surface appearance to the way it was before you started to dig.

Do not use a large shovel to dig! Many coin hunters use a small garden trowel and a flat bladed screwdriver. Probe gently to locate your target item. A brass rod with a smooth tip is useful to probe for coins because it will not usually scratch them.

When searching in sand you may find it easier to use a scoop with small holes that allow the sand to pass through. You can have **an adult** help you make your own: Drill a series of 1/4" holes into a clean, empty plastic jug. Use sharp scissors to cut off the bottom of the jug and shape the scoop.

If the coins you find are encrusted in dirt and grime you should be very careful in cleaning them, especially if they are old and of possibly high value. Do not use harsh chemicals or abrasives. You might try and soak them for a day or two in olive oil and then rub them gently with an old towel to remove the dirt.

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