

DRAGON ROBOT

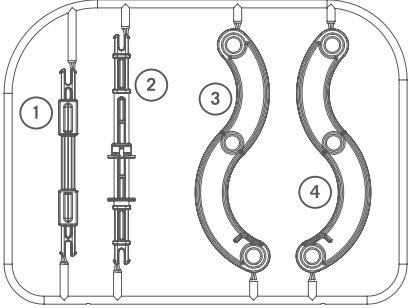
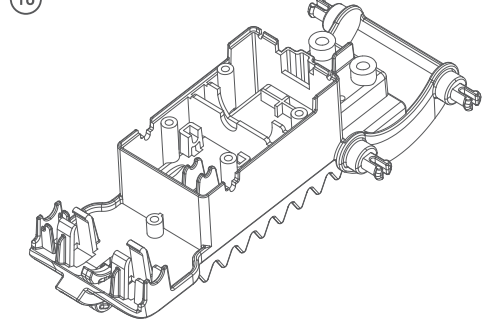
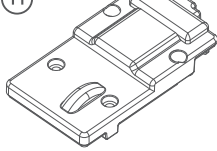
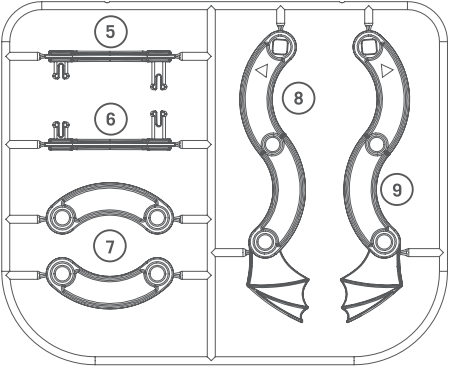
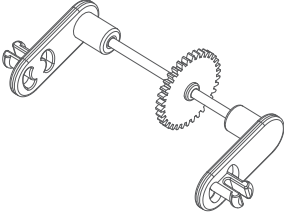
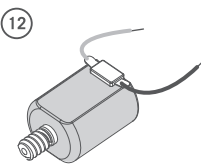



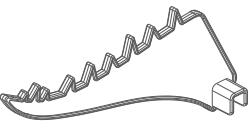








A. SAFETY MESSAGES

1. Please read carefully through all these instructions.
2. Adult supervision and assistance are recommended at all times.
3. This kit is intended for children over 8 years of age.
4. This kit and the finished product contain small parts that present a choking hazard. Keep away from children under 3 years of age.
5. Scissors are required but not included in this kit. Adult supervision is required when using them.

B. USE OF BATTERY

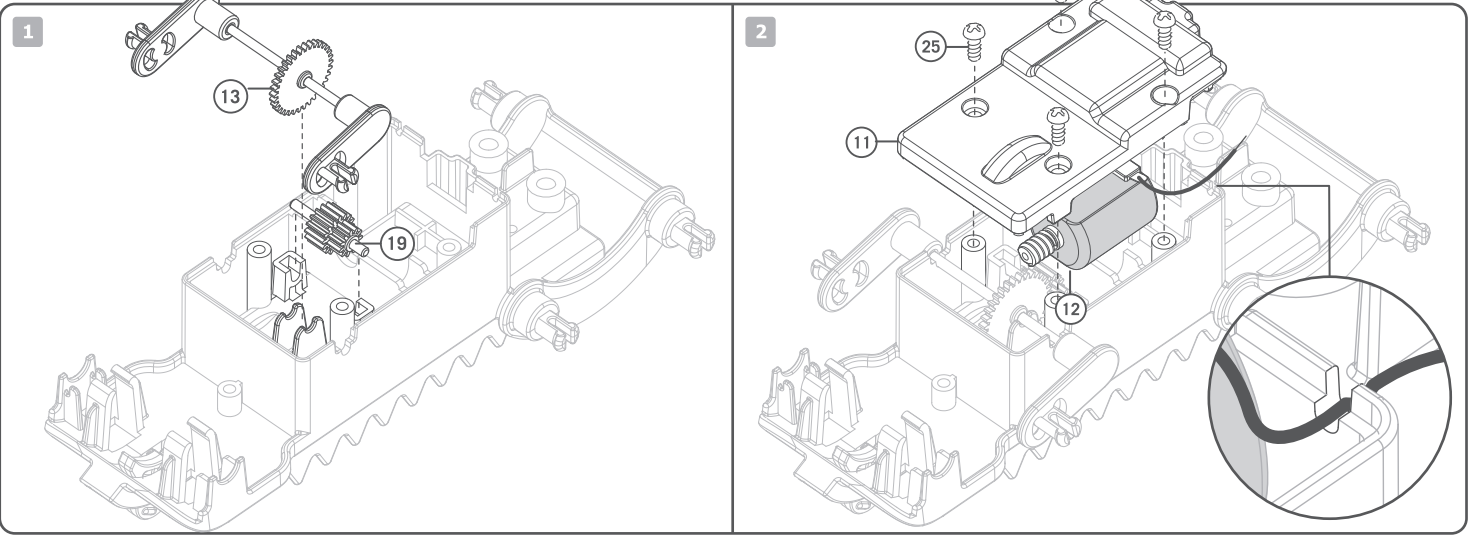
1. This kit requires one AA 1.5-volt battery (not included).
2. For best results, always use fresh battery.
3. Make sure you insert the battery in the correct polarities.
4. Remove the battery from the kit when not in use.
5. Replace an exhausted battery straight away to avoid possible damage to the kit.
6. Rechargeable battery must be removed from the kit before recharging.
7. Rechargeable battery should always be recharged under adult supervision.
8. Make sure that the supply terminals in the battery case are not short circuited.
9. Do not recharge non-rechargeable batteries.

C. CONTENTS

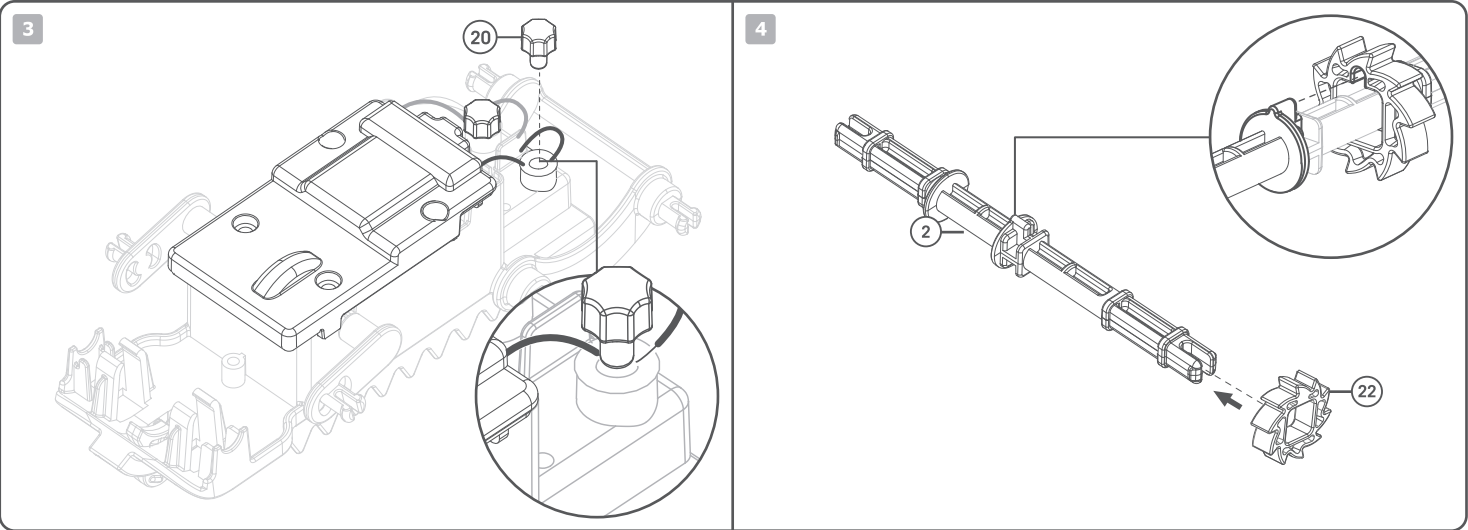
					
					
					
					
					
					

Part 1: Short plastic axle x 1, Part 2: Long plastic axle x 1, Part 3: S-shaped link (right) x 1, Part 4: S-shaped link (left) x 1, Part 5: Curved link with pin (right) x 1, Part 6: Curved link with pins (left), Part 7: Curved link with holes x 2, Part 8: S-shaped link with wings (right) x 1, Part 9: S-shaped link with wings (left), Part 10: Body x 1, Part 11: Gearbox cover x 1, Part 12: Motor x 1, Part 13: Long metal axle with crank x 1, Part 14: Front wheel x 2, Part 15: Rear wheel x 2, Part 16: Head x 1, Part 17: Battery compartment cover x 1, Part 18: Eye support x 2, Part 19: Short metal axle x 1, Part 20: Terminal cap x 2, Part 21: Tail x 1, Part 22: Ratchet wheel x 1, Part 23: Moving eye x 2, Part 24: Ratchet finger x 1, Part 25: Screw x 5. Also required, but not included in the kit: 1 x 1.5V AA battery, small crosshead screwdriver, and a pair of scissors. The scissors are required to remove parts from the plastic moulded frame and to cut away sharp edges to prevent any injuries.

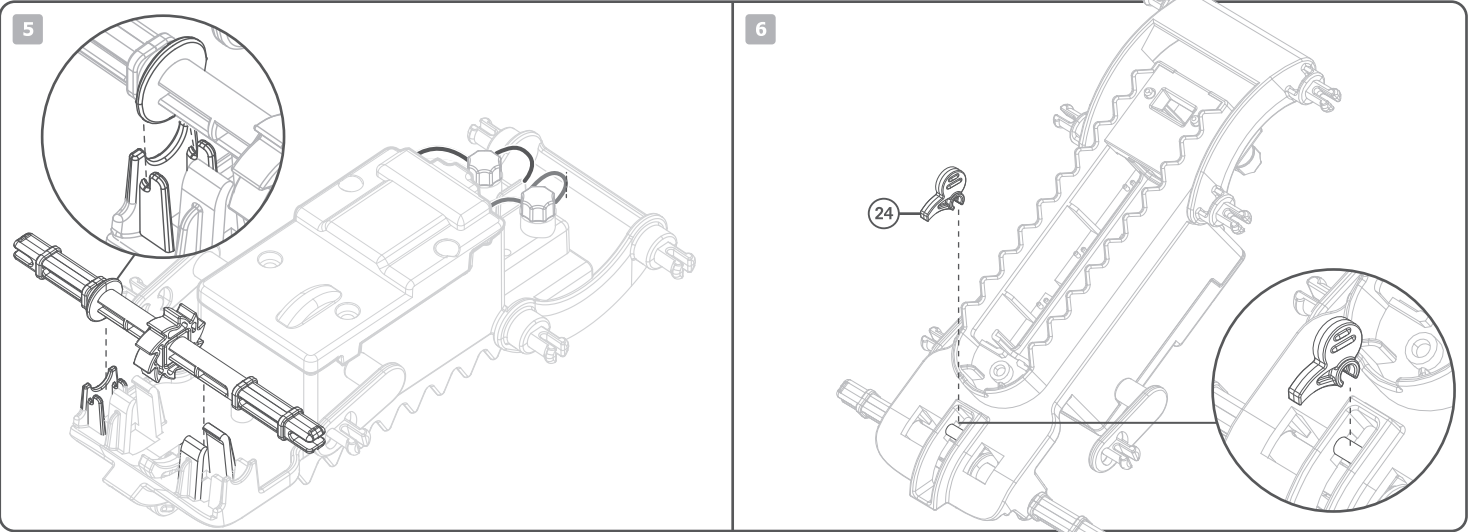
D. ASSEMBLY



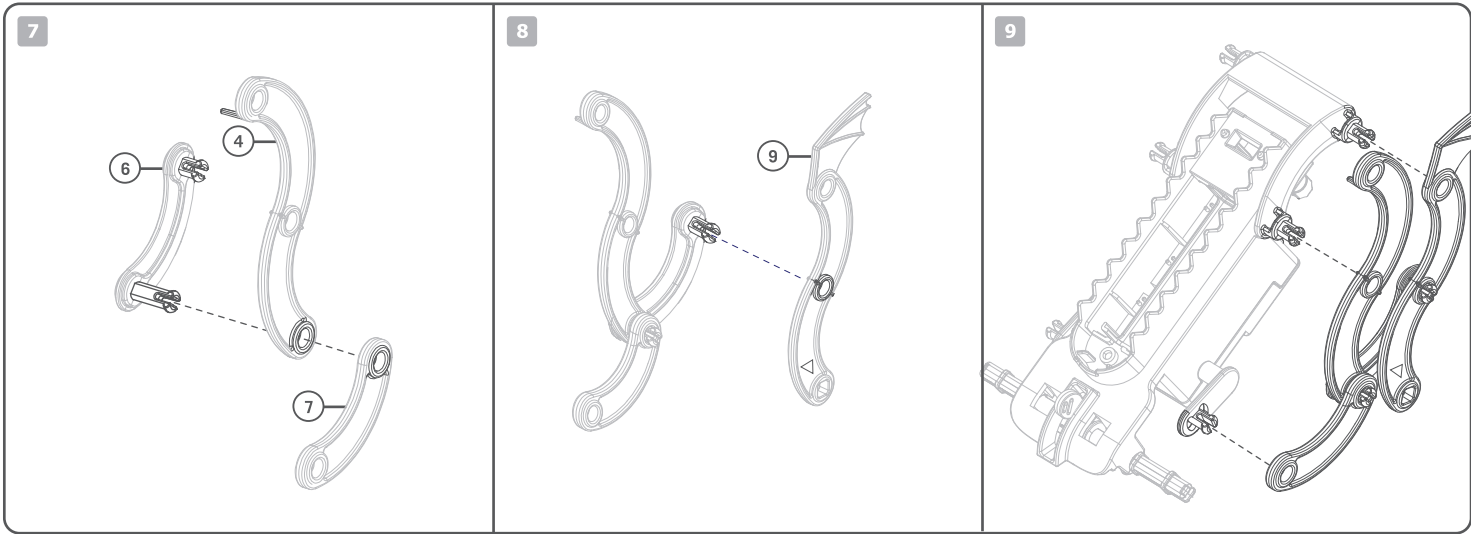
1. Place the body on a tabletop in the position shown in the diagram. Slot the short metal axle into the gearbox with the smaller gear wheel closest to you. Now slot the long metal axle with cranks into the gearbox so that its gear interlocks with the small gear on the short axle, and the axle itself sits in the slots in the sides of the gearbox.
2. Slot the motor into the gearbox with the wires at the top, and push the wires into the small slots in the end of the gearbox (see the circle diagram). The worm (screw-like) gear on the motor must interlock with the large gear on the short axle. Apply some lubricant (e.g. cooking oil, lotion) on the gear to reduce friction. Add the gearbox cover and secure it with four screws.



3. Put the bare ends of the black wire from the wire and the black wire from the battery compartment into one of the terminals. Push in a terminal cap to secure the wires in place. Repeat with the red wire from the motor and the red wire from the battery case in the other terminal.
4. Use a pair of scissors to remove the long plastic axle from the plastic moulded frame. (Remarks: Cut away the shape edges to prevent any injuries.) Slide the ratchet wheel into the centre of the long plastic axle so that it locks onto the axle. The wheel only fits correctly one way round.



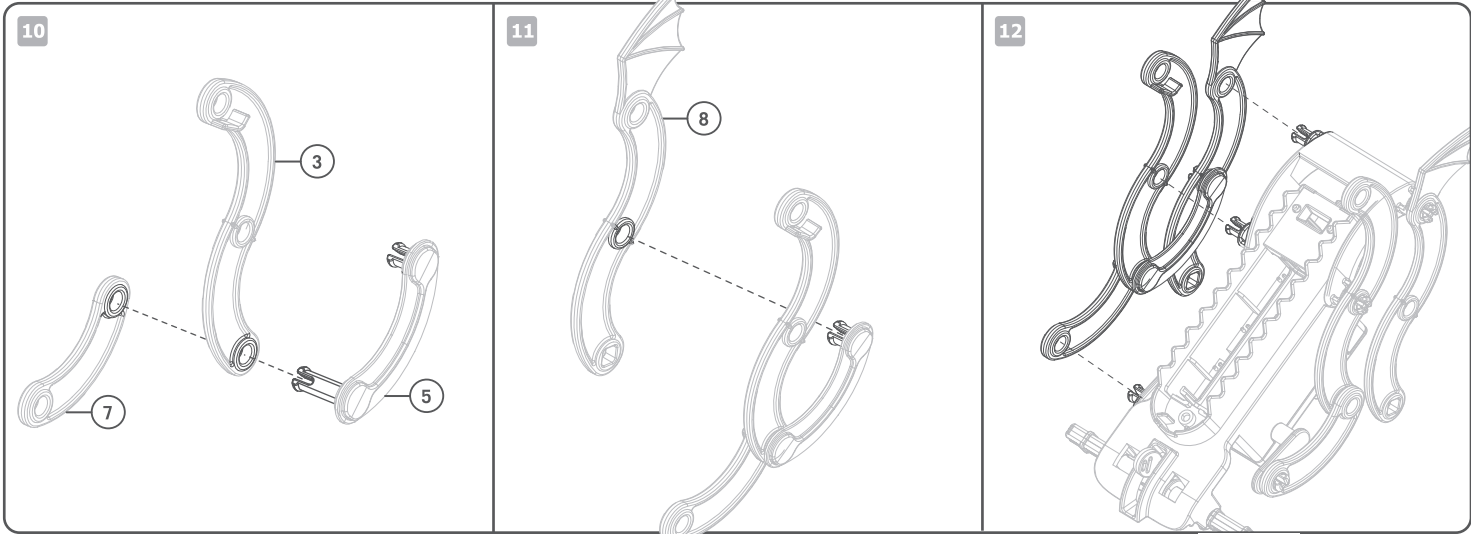
5. Clip the axle into place so that the small disc on the axle fits into the slot on the base. The axle will only fit one way round.
6. Install the ratchet finger into place. Please ensure the ratchet finger is attached to the gap of ratchet wheel.



7. Use a pair of scissors to remove the curved link with pin (left), S-shaped link (left), curved link with holes and S-shaped link with wing (left) from the plastic moulded frame. (Remarks: Cut away the shape edges to prevent any injury.) Push the flat end of the S-shaped link onto the longest pin of the curved link.

8. Push the curved link with holes onto the same pin (you will hear a click sound when it is pushed on properly). Push the central hole of the S-shaped link with wing onto the shorter pin of the curved link until it clicks in place.

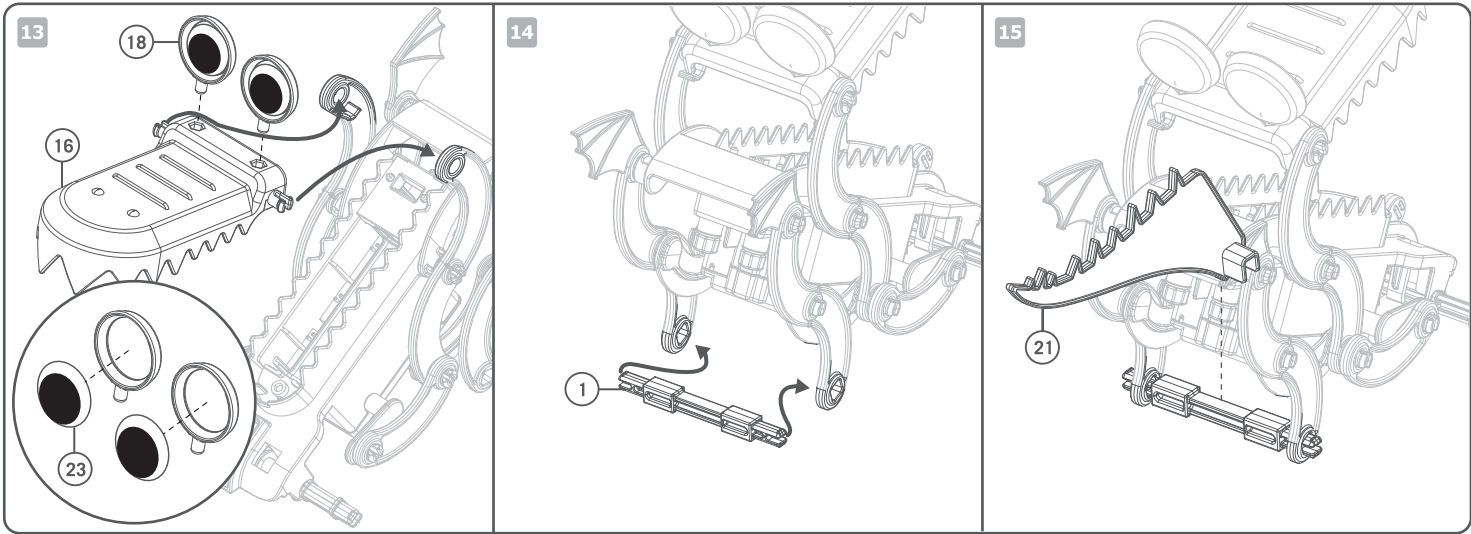
9. Clip the top end of the S-shaped link with the wing to the rear pin on the left-hand side of the body, the central hole of the plain S-shaped link to the next pin, and the spare hole on the curved link to the front pin on the body. Make sure all the joints have clicked into place.



10. Repeat Step 7, but this time with the links for the right-hand side of the body.

11. Repeat Step 8, but this time with the links for the right-hand side of the body.

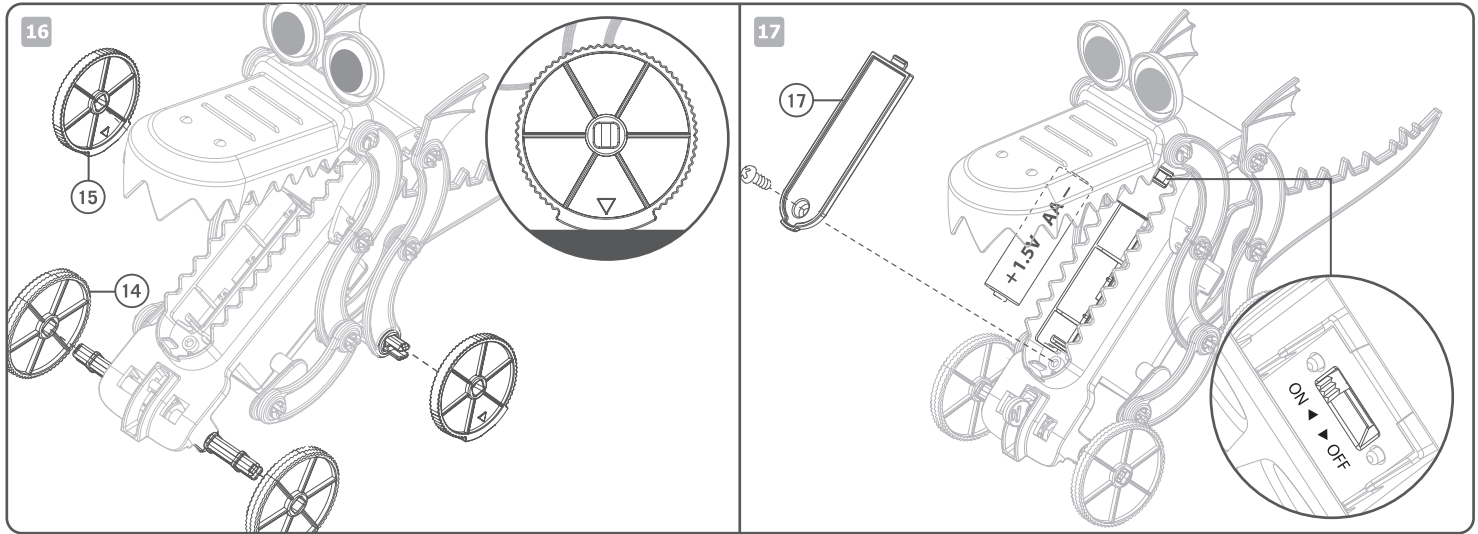
12. Repeat Step 9, but this time click the links onto the pins on the right-hand side of the body.



13. Stick the moving eyes to eye supports, then push the supports into the holes on the head. Push the pins on the head into the holes in the S-shaped links.

14. Push the two edges of the short plastic axle into the holes at the lower ends of the S-shaped links with wing.

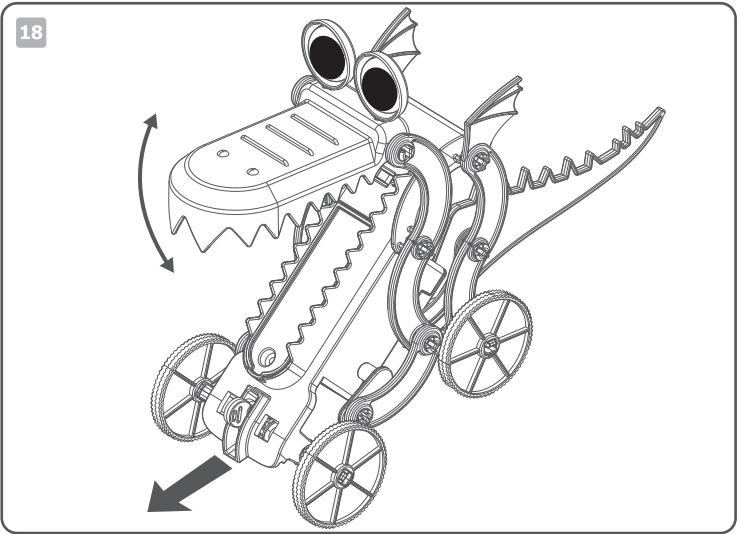
15. Push the tail onto the short plastic axle.



16. Clip two front wheels onto each end of the long plastic axle, and two rear wheels onto the bottom pins on each of the S-shaped links with wing. The triangles marked on the rear wheels should point downwards, so that there is enough friction for the robot to move smoothly.

17. Insert an AA 1.5-volt battery into the battery compartment, with the flat end of the battery against the coiled spring inside the compartment. Put on the battery compartment cover and secure it with a screw. Slide the switch the ON position.

18. Place the Dragon Robot on a smooth surface and watch it go. It will move forwards with a jerky motion, with its jaws opening and snapping shut!



E. TROUBLESHOOTING

If the robot does not run:

- Check that you are using a fresh battery.
- Check that the battery is inserted the correct way round in the battery case.
- Check that the wires are connected correctly and are touching the metal terminals.
- Apply some lubricant (lotion or cooking oil) on the gear to reduce friction.
- The triangles marked on the rear wheels should point downwards.

F. HOW IT WORKS

- The worm gear and small gears in the gearbox reduce the speed of movement between the motor and the cranks on the side of the gearbox, making the cranks turn slowly. The cranks turn the circular movement from the gear box into backwards and forwards motion of the curved link, and this pushes the rear wheels backwards and forwards, and also makes the jaw open and close.
- When the crank pushes towards the rear of the dragon, the front wheels roll forward while the rear wheels being pushed towards the back of the robot.
- When the crank pushes back towards the front of the dragon, the curved links bring the rear wheels to move forwards. At the same time, the ratchet finger stops the front wheel from turning backwards, forcing the robot to move forwards.

G. FUN FACTS

- German engineers have built an 11-tonne, 15-metre-long remote-controlled robot dragon for public displays. It's called Tradinno, and it holds the record for the world's largest robot.
- The National Institute of Advanced Industrial Science and Technology in Japan has built several full-sized, life-like, walking dinosaurs.
- American company Boston Dynamics has built a human-like, bipedal robot that can walk on two legs over rough terrain without falling over.
- Ratchets are part of many mechanical devices, such as watches and clocks. A ratchet allows a wheel to turn on direction, but stops it from turning in the opposite direction.

QUESTION AND COMMENTS: We value you as a customer and your satisfaction with this product is important to us. If you have comments or questions, or you find any part of this kit missing or defective, please do not hesitate to contact our distributor in your country. You will find the address printed on the package. You are also welcome to contact our Marketing Support Team: Email: infodesk@4m-ind.com, Fax (852) 25911566, Tel: (852) 28936241, Web site: WWW.4M-IND.COM