

[Manuals.plus](#) /

› [Science4you](#) /

› Science4you Hydraulic Cyborg Hand Kit - Instruction Manual

Science4you 1283

Science4you Hydraulic Cyborg Hand Kit

Instruction Manual - Model 1283

1. INTRODUCTION

Welcome to the world of robotics and engineering with the Science4you Hydraulic Cyborg Hand Kit! This kit provides an engaging and educational experience, allowing you to build your own functional robotic hand powered by hydraulic principles. Designed to foster an understanding of STEM concepts, this manual will guide you through each step of assembly, operation, and care for your new hydraulic hand.



Figure 1: The Science4you Hydraulic Cyborg Hand Kit, showing the product packaging and the assembled robotic hand.

The assembled hand measures approximately 40 cm (16 inches) and consists of 112 pieces. It operates without the need for motors or batteries, relying solely on hydraulic power for its movements.

2. SAFETY INFORMATION

WARNING:

- This product is not recommended for children under 10 years old due to small parts and complex assembly.
- Adult supervision is recommended during assembly and initial use.
- Keep all components away from young children and pets to prevent choking hazards.
- Do not attempt to modify the product in any way not described in this manual.
- Ensure all connections are secure to prevent leaks if using water for hydraulic system.

3. WHAT'S IN THE BOX

Before beginning assembly, please verify that all 112 pieces are present and accounted for. Refer to the diagram below for a visual representation of the components.

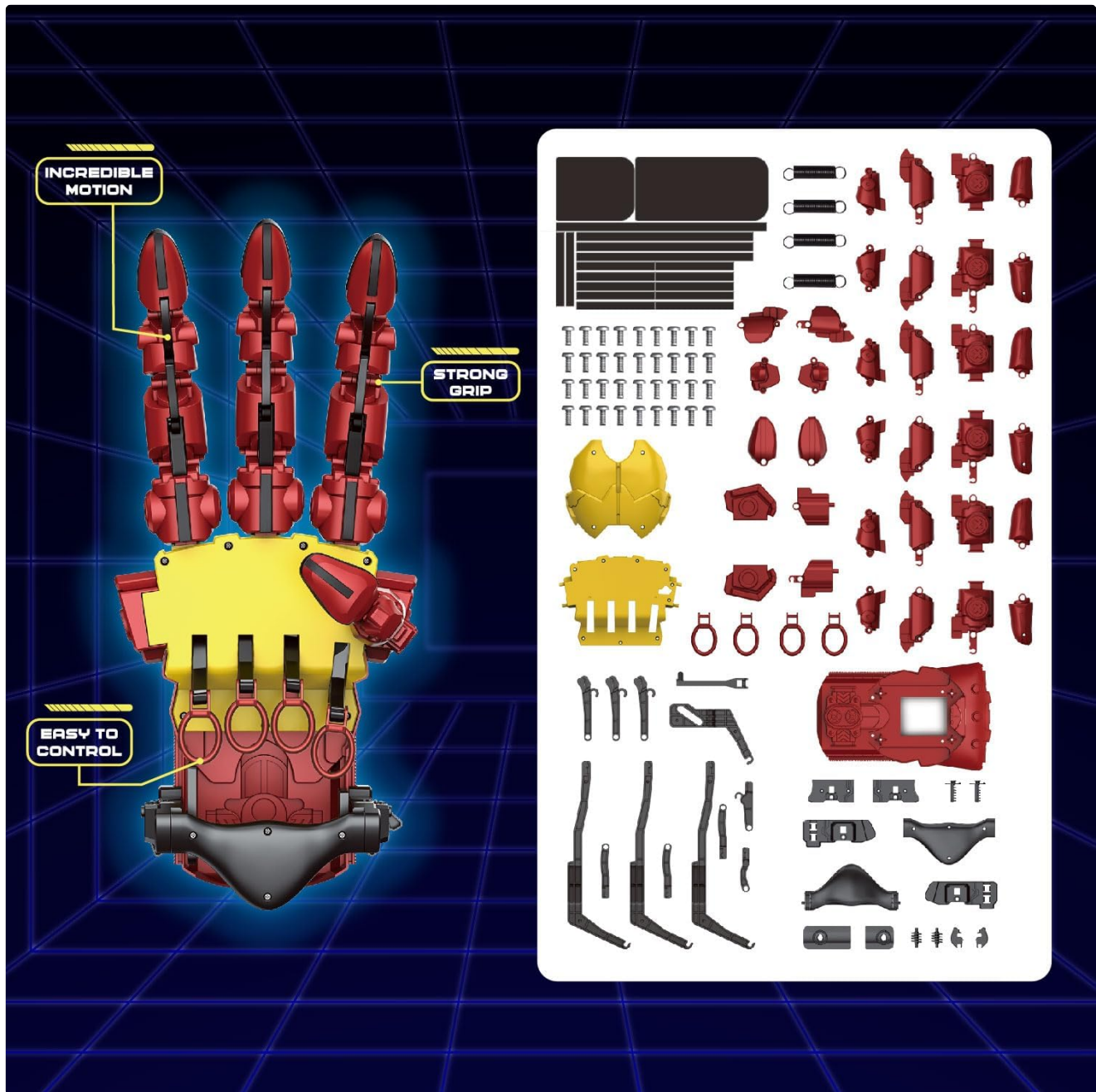


Figure 2: All 112 components of the Hydraulic Cyborg Hand Kit laid out, including structural pieces, hydraulic cylinders, and connecting parts.

The kit primarily consists of plastic components designed for durable and precise assembly. If any parts are missing or damaged, please contact customer support.

4. SETUP AND ASSEMBLY INSTRUCTIONS

Follow these steps carefully to assemble your Hydraulic Cyborg Hand. It is recommended to work on a clean, flat surface.

1. **Preparation:** Unpack all components and organize them. Familiarize yourself with the different types of pieces by comparing them to the diagrams in the manual.
2. **Finger Assembly:** Begin by assembling the individual finger segments. Each finger consists of multiple joint pieces that connect to form the digit. Pay close attention to the orientation of each piece.

3. **Hydraulic Cylinder Integration:** Insert the small hydraulic cylinders into the designated slots within each finger segment. Ensure they fit snugly.
4. **Palm and Wrist Assembly:** Connect the assembled fingers to the main palm structure. Then, attach the wrist and forearm components, ensuring all connections are secure.
5. **Hydraulic Tubing Connection:** Carefully connect the hydraulic tubing from each finger cylinder to the corresponding control levers on the wrist/forearm section. Ensure no kinks or blockages are present in the tubing.
6. **Filling the System:** Once all connections are made, fill the hydraulic system with water as instructed in the detailed manual provided with the kit. This step is crucial for proper function.
7. **Final Checks:** Before use, gently test each finger's movement by operating its corresponding lever to ensure smooth hydraulic action.



Figure 3: A child engaged in the assembly process of the hydraulic hand, demonstrating the hands-on nature of the kit.

The assembly process is designed to be intuitive, but patience and attention to detail are key. No batteries or external power sources are required for operation.

5. OPERATING INSTRUCTIONS

Once assembled and filled with water, your Hydraulic Cyborg Hand is ready for operation. The hand is designed to mimic human hand movements through its hydraulic system.

- **Wearing the Hand:** Slide your own hand into the ergonomic grip on the underside of the robotic hand. Your fingers should align with the control levers.
- **Controlling Movements:** Each finger of the robotic hand is controlled by a corresponding lever. By pressing or pulling these levers, you manipulate the hydraulic fluid, causing the robotic fingers to open and close.
- **Grasping Objects:** Practice grasping various objects. The hand is capable of picking up items such as balls or bottles. Adjust the pressure on the levers to achieve the desired grip strength.
- **Fluid Motion:** Experiment with different combinations of lever movements to achieve complex actions and fluid motion.



Figure 4: A child demonstrating the ability of the hydraulic hand to pick up and hold a bottle, showcasing its functional grip.

The design allows for a strong grip and precise control, making it an excellent tool for understanding mechanical advantage and hydraulic power.

6. MAINTENANCE

To ensure the longevity and optimal performance of your Hydraulic Cyborg Hand, follow these simple maintenance guidelines:

- **Cleaning:** Wipe the exterior of the hand with a soft, damp cloth. Do not submerge the hand in water or use harsh cleaning agents.
- **Hydraulic Fluid:** Periodically check the water level in the hydraulic system. If the water level drops due to evaporation or minor leaks, refill as per the assembly instructions. Use clean tap water.
- **Storage:** When not in use, store the hand in a clean, dry place away from direct sunlight and extreme temperatures.
- **Joint Lubrication:** If any joints become stiff over time, a small amount of silicone-based lubricant can be applied to the pivot points (avoiding hydraulic components) to restore smooth movement.

7. TROUBLESHOOTING

If you encounter any issues with your Hydraulic Cyborg Hand, refer to the following common problems and their solutions:

Problem	Possible Cause	Solution
Fingers not moving smoothly or fully.	Insufficient water in hydraulic system; air bubbles in tubing; kinked tubing; loose connections.	Refill water; gently tap tubing to dislodge air bubbles; straighten tubing; check all connections for tightness.
Water leakage.	Loose connections; damaged tubing or cylinder.	Ensure all tubing is securely attached to cylinders and levers. If components are damaged, contact customer support for replacements.
Difficulty assembling certain parts.	Incorrect orientation; excessive force applied.	Refer to the detailed assembly diagrams. Ensure parts are aligned correctly before applying gentle pressure. Do not force components.

If the problem persists after attempting these solutions, please contact Science4you customer support.

8. SPECIFICATIONS

Feature	Detail
Product Model Number	1283
Product Dimensions (L x W x H)	11.49 x 23 x 18 inches (approx. 29.2 x 58.4 x 45.7 cm)
Assembled Hand Size	Approx. 40 cm (16 inches)
Item Weight	1.63 pounds (approx. 0.74 kg)
Number of Pieces	112
Recommended Age	10 years and up

Feature	Detail
Power Source	Hydraulic (no batteries required)
Main Material	Plastic
Release Date	March 5, 2024
Manufacturer	Science4you

9. WARRANTY INFORMATION

Science4you products are manufactured to high-quality standards. While specific warranty details may vary by region, Science4you typically offers a limited warranty against defects in materials and workmanship for a period from the original date of purchase. Please retain your proof of purchase for any warranty claims.

This warranty does not cover damage resulting from misuse, abuse, accident, unauthorized modification, or normal wear and tear. For detailed warranty terms and conditions, please refer to the documentation included with your product or visit the official Science4you website.

10. CUSTOMER SUPPORT

For any questions, concerns, or assistance with your Science4you Hydraulic Cyborg Hand Kit, please contact our customer support team. When contacting support, please have your product model number (1283) and proof of purchase ready.

Science4you Customer Service:

Website: www.science4you.toys (Please check the website for regional contact information)

Email: Refer to the product packaging or official website for the most current email address.

We are committed to providing an excellent educational experience and are here to help you make the most of your Science4you product.

© 2024 Science4you. All rights reserved. Information in this manual is subject to change without notice.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question