Dragons In the Community- 3D Printed Accessibility Campaign

Quick Reference: Core Design Features of Adaptive Tools
This handout outlines the vital physical and mechanical design pillars that make open-source adaptive tools impactful and functional for individuals navigating physical, sensory, or cognitive barriers.

1	**Ergonomic & High-Contrast Design** Focuses on comfort, visibility, and minimizing grip strain.	**Enlarged Grips:** Thick or textured handles that reduce the need for a tight pinch-grip. **Non-Slip Texturing:** Ribbed surfaces or sleeves to prevent tools from slipping. **Stabilizing Bases:** Weighted ends to balance tremors; suction elements to secure items. **High Contrast:** Bright, contrasting colors to assist users with low vision.
2	**Universal & Independent Functionality** Removes barriers for limited dexterity or low grip strength.	**Universal Cuffs:** Straps that secure tools (pens, forks) directly to the hand or wrist. **Angled Shafts:** Fixed-angle necks that eliminate the need to bend joints or rotate wrists. **One-Handed Operation:** Designs requiring only a single hand (e.g., rocker knives, one-handed openers).
3	**Energy Conservation & Leverage** Protects fragile joints and minimizes physical fatigue.	**Extended Reach:** Longer handles to prevent painful bending, stretching, or straining. **Spring Assistance:** Self-reopening mechanisms so pressure is only needed to close the tool. **Maximized Leverage:** Large paddle levers instead of small twisting knobs to multiply hand force.
4	**Low-Maintenance Materiality** Ensures practical, long-term, everyday use.	**Lightweight:** Smart, hollow/infill-optimized printing to reduce muscle fatigue. **Sanitization:** Non-porous, highly cleanable surfaces for long-term hygiene.

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Small Prints. Big Autonomy.

Why This Matters: From Necessity to Living

When the world isn't designed for your body, everyday tasks take a massive physical and mental toll. Accessibility is about independence, dignity, and opening up community access:

- Restoring Agency: A modified pen grip or adaptive utensil provides the choice to write a letter or enjoy a family meal independently.
- Bypassing Markups: Open-source 3D printing bypasses traditional, expensive medical catalog markups—turning cents worth of filament into life-altering tools.

How Our Community Can Help

We are transforming our storefront into a Community Donation Hub for open-source assistive technology. If you have a 3D printer, you can manufacture immediate, real-world solutions:

- Assistive Writing Grips: Enlarged, bulbous handle designs that eliminate tight pinch-grips.
- Adaptive Eating Utensils: Rocker knives and universal handle adapters that lock forks or tools into place.
- Medication Devices: High-leverage pill bottle openers and cap wrenches.
- Daily Living Aids: T-shaped plug pullers, zipper pulls, and paddle light switch extensions.

Quick Print Spec Guidelines

To ensure items are safe, durable, and functional for users:

- Material: Use PLA+, PETG, or TPU. Avoid standard, brittle PLA for load-bearing tools.
- Strength: Minimum 3–4 perimeters/walls and 30% infill.
- Finish: Completely remove support structures and sand down all sharp edges to protect sensitive skin.

Drop-Off & File Info

Stop by the shop to drop off prints or check out our Interactive Demonstration Board to feel the mechanical advantage yourself!

- Donation Hub: Clear Acrylic Bin @ Digital Dragon 3D, 152 N. Steele St., Sanford, NC 27330
- Get the Files:
- https://makegood.design/devices
- https://www.makersmakingchange.com

DigitalDragon3d.com

info@DigitalDragon3d.com

Let's make the world fit everyone, one layer at a time