



# **BNA 2026**

# **Isaac's Duel**

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**Brief Study Guide**

# Isaac's Duel

Beep, beep, boop!

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Hello, User.

You have been shortlisted as a potential candidate for an opportunity to participate in a battle for glory: *Isaac's Duel*. Do not worry. It will not be you who fights, but something you create. A machine summoned from thought and forged through precision. Yet not all are worthy of this honor. Before the gates open, your wits will be tested and your understanding of a robot's very soul placed under scrutiny.

You must know what makes a droid truly a droid. You must know how to wire it so it can reach its absolute potential. This first trial demands knowledge of the open-source platform **Arduino**, paired with confident breadboard wiring. A firm grasp of **LEDs, resistors, sensors, and potentiometers** will be essential, for these components serve as the senses, nerves, and limbs of your machine. Delegates will be instructed on the exact circuit they must construct, which must then be brought to life using the **Tinkercad circuit simulation** software. Only those whose connections are precise, clearly structured, and fully functional will earn the right to advance.

Congratulations. Should you survive this initial appraisal, you will have proven your worth. The arena then awaits. A place where metal is torn, wires are severed, and only the most resilient, agile, and tactical creations endure. Welcome to the proving grounds. Here, imagination must bow to reality. Your design must be bold yet feasible, ruthless yet grounded, for the laws of physics show no mercy.

In this round, you will construct an **IR remote-controlled battlebot** and pit it against rival teams. Your creation must obey your commands without hesitation, responding accurately to infrared signals while maintaining stable and reliable movement throughout battle. Mastery of **IR remotes and receivers** is vital, for they are your voice on the field. Knowledge of **DC motors, motor drivers, and basic chassis design** will form the muscles and bones of your machine. All of it will be unified through **Arduino programming**, the neural core from which every action is born. Like the creation of Frankenstein, your machine must move, listen, and stand ready to challenge any who dare oppose it.

## Perk: Sabotage

If you best all those who stood in your path, your reward is dominion over time itself. You may select one opposing delegation and send them into the past – reduce their initial time by **45 minutes**. The affected team will be required to leave the module location and may only begin once those 45 minutes have fully elapsed. To make use of this ability, you must provide its token of ownership to the Executive Council before a module round begins. This power may be used only once. Wield it carefully, for once time is stolen, it can never be reclaimed

***Note: The information in this document is subject to changes.***