

FDG Arena

Version 0.5 for the Macintosh

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Introduction

You're the game master. A group of adventurers has stumbled into a wandering band of goblins. But how many of the troublesome beasts have they encountered? Too few and the subsequent combat is a waste of precious gaming time. Too many and the characters are unnecessarily weakened for the real part of the adventure. So how many is "just right?"

FDG Arena steps in to help with the answers. FDG Arena is an armed-combat simulation program. You enter combat data for a character and the Macintosh simulates a number of one-on-one combats with various types of "low-level" monsters and tells you how many creatures of the given type are required on average to disable that character.

By the way, FDG Arena has been designed to be usable with nearly any combat system that uses some form of "percent chance to hit" and "percent armour protection." Since most players will be using the AD&D™ combat system, simple rules for converting AD&D™ characters' abilities to FDG Arena characteristics have been provided.

Running FDG Arena

After installing the FDG Arena application on its destination volume (hard drive or floppy), click on the FDG Arena icon and choose Open from the file menu or simply double click on the FDG Arena icon.

Using FDG Arena

FDG Arena requires several pieces of information to run its simulations—character data and simulation data. All information is entered via the pop-up menus in the FDG Arena window.

Character Data

FDG Arena uses the following character information to perform its simulations:

- **Armour Protection** - This value represents the percent protection a character enjoys and ranges from 0% to 100%. 0% basically represents no protection at all and 100% the ultimate in bodily protection. If you are using an AD&D™ character, subtract your character's armour class

from ten and multiply the result by 5. This result is your effective armour protection. For example, an AC of 4 would be equivalent to an Armour Protection of $(10-4) \times 5 = 30\%$.

- Hit Points - the present hit points of the character. The range of this value is from 1 to 50.
- Base Hit Percentage - This is the base probability that the character can hit a creature with an Armour Protection of 0%. Notice that this percentage can be greater than 100%. There are two possibilities if you are using an AD&D™ character. The first method is to use the tables for your particular character-type to look up the value required to hit an Armour Class of 10, modify this number by any particular adjustments due to the character or his (her) weapons, then subtract this number from 21 and multiply the result by 5. The second method is to utilize the calculated THACO value for the character—subtract the THACO from 31 and multiply the result by 5. For example, a THACO of 15 is equivalent to a Base Hit Percentage of $(31-15) \times 5 = 80\%$.
- Number of Attacks - the number of attacks the character makes per combat time unit (or round), expressed as attacks/round. A range between one attack every two rounds (1/2) and four attacks per round (4/1) is supported.
- Number of Dice - the number of dice used to determine damage done by the character on a successful hit. The number may be from 1 to 3.
- Type of Dice - the number of sides on each of the damage dice. 2-, 3-, 4-, 6-, 8-, and 12-sided dice are supported.
- Damage Bonus - additional damage done by the character due to strength or magical bonuses. The value ranges from -3 to +10.

Simulation Data

Only two additional items are required by the simulation.

- Monster Type - the type of creature the character will be fighting. Version 0.5 of FDG Arena supports kobolds, goblins, orcs, ogres, skeletons and zombies. The statistics of the monsters used inside the actual simulation are based upon combinations of descriptions of those monsters from various gaming systems.
- Number of Runs - the number of combat simulations that should be performed. FDG Arena will perform 100, 1000 or 10,000 combat simulations. The accuracy of the output increases with the number of simulation runs, but more runs take longer to complete.

Fight or Quit

Pressing the Fight button will perform the simulation. The cursor will change shape to show that the program is working. As the time required to perform all the simulation runs may be quite long on slower machines, pressing any

key during the simulation will stop the simulation and report the results up to that moment.

Pressing the Quit button will stop the program and return to the Finder.

Results

The results of the simulation are shown at the bottom of the window. Three values are provided for comparison. Minimum, Maximum and Average illustrate the smallest, largest and average number of the monsters killed by the character before the character was himself (or herself) killed. These numbers may be used to determine the number of monsters to set against the character or party. (Note: In the case that the character kills in excess of 500 creatures in one pass, the word "Overflow" will appear in the result fields.)

The number of monsters to use depends upon the desires of the game master. Should the character easily survive, probably survive or barely survive? Setting the number of monsters equal to the "Average" value provided will mean that the character will die roughly 50% of the time. Setting the number to the "Minimum" value will almost assure survival and providing the "Maximum" will nearly guarantee the character's demise.

Points to Remember

Two issues should be considered while using this program—party order and the use of magic.

FDG Arena makes a rather simplistic assumption that the character is fighting only one monster at a time—when that monster dies another takes its place. Circumstances arise in an adventure where one character may be in combat with multiple monsters. Also, party order may be such that only a few of the party members can engage in combat at one time—a fighter in the second row who can't fight oncoming monsters isn't going to be much use until the player in front of him is disabled by the monsters and he can step into the vacated position. So think logically when applying the simulation results. In the first case, lower the number of monsters; in the second case, the total should probably be based only on the first row of characters.

One other item which should be considered by the game master is the use of magic. Due to the large number of variables involved with using magic, only hand-to-hand combat has been considered in FDG Arena. The use of magic by the party will *probably* increase the number of monsters that can be used without unduly affecting the party's chance for survival, but this isn't guaranteed.

Some Examples

The following examples illustrates how FDG Arena might best be used in setting up encounters or creating characters.

Example 1

A party consisting of two characters is wandering through a complex of narrow underground passageways. Turning a corner, they nearly run into a group of orcs walking in the opposite direction. After a few heartbeats of mutual surprise, war-cries erupt from both groups and battle is joined!

The party consists of a warrior and a knight. The characters have the following possessions and abilities.

Knight

Armour Protection: Plate Mail (40% protection)
Hit Points: 15
Number of Attacks: 1/1
Weapon: Bastard Sword used two-handed (2d6 damage)
Damage Bonus: +2
Base Hit Percentage: 70%

Warrior

Armour Protection: Chain Mail and Shield (30% protection)
Hit Points: 12
Number of Attacks: 1/1
Weapon: Long Sword (1d8 damage)
Damage Bonus: +1
Base Hit Percentage: 65%

The first step is to run the simulation for each character. The following table shows the results.

	<u>Knight</u>	<u>Warrior</u>
Minimum Killed	0	0
Maximum Killed	88	31
Average Killed	37.39	10.38

With this information, the DM needs to determine how well the party should fare. If the desire is to weaken the party without destroying any party member, the number of orcs should be set on the order of ten to fifteen. Why? Assuming that the Knight and the Warrior finish off orcs at roughly the same rate, after each has finished off ten (a total of twenty), the Knight is just getting started while there's a 50% chance that the Warrior is dead! Lowering the total number to less than eight orcs apiece improves the warrior's chance of survival. Note that at least one time in 10,000 fights, the Knight and the Warrior were killed without killing—there is no guarantee that the party can survive against one very lucky orc.

Example 2

As a second example, consider something as simple as the creation of a character; his statistics, choice of armour and choice of weapons. Many questions can be asked and answered using FDG Arena. For example: what advantage does a magical dagger (+5% to hit, +1 damage) have over a normal quarterstaff. Suppose a wizard has the following abilities.

Wizard

Armour Protection:	None (0% protection)
Hit Points:	6
Number of Attacks:	1/1
Weapon:	Magic Dagger (1d4+1) or Quarterstaff (1d6)
Damage Bonus:	+0
Base Hit Percentage:	Dagger - 60% or Quarterstaff - 55%

Testing both versions of the Wizard against Kobolds we find that on average this character manages to survive against 5.66 kobolds with the dagger versus 4.16 with the quarterstaff. Though the dagger has a smaller maximum damage (5 vs. 6), the increased probability to hit makes it the weapon of choice.

In Closing...

This is version 0.5, so what can be expected from the real version? The updated version of FDG Arena will allow simulation of any creature against any other creature (with the exception of magic and "special" attacks/defenses such as dragon breath, stoning, etc.) so the GM can test character against character, character against monster or even monster against monster. In addition, some of the limitations inherent in FDG Arena 0.5 will be removed, such as the maximum of 50 hit points per character.

FDG Arena 0.5 is shareware. If you use it, be kind enough to support the shareware system by sending five dollars to the address below [OR](#) by sending a full page of useful comments and suggestions for FDG Arena or other gaming software you'd like to see to the address below. All we ask is that you try to keep your suggestions away from any specific gaming system; our goal is to provide software that doesn't depend on any specific game.

As a registered user, you'll be kept informed of updates to FDG Arena (registered users will receive FDG Arena 1.0 free) and learn about other products in the works here at the Fantasy Design Group—more GM-assistant programs like this one, computer-based gaming modules and maybe even a computer magazine. PC-users stay tuned—versions for PCs and compatibles are on the way.

If you have any questions, comments, or shareware fees we'd love to hear from you. Drop us a note at:

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P.S. DarkMoor is coming.