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OLYMPIAD PREPARATION GUIDE

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As winter approaches, so does Olympiad season. With so many on the horizon, now would be a good time to start preparing. Who knows, you might even end up representing Bangladesh in an International Olympiad. The following are some of the ones where Bangladesh participates internationally, accompanied by prep material so that you can get your nerd game on point.

This preparation guide has been made with information and advice provided by Fairuz Ishraque, Bronze Medalist at the 10th International Earth Science Olympiad and senior writer at the Science Olympiad Blog (scienceolympiadsbd.blogspot.com).

Physics Olympiad: With questions based on problem-solving more than anything else, this is ideal for people who like to exercise their brain. They cover a wide range of topics (from kinematics to thermodynamics to electricity to gravitation to the theory of spatial relativity), and the best way to cover these is to follow *"Physics by Halliday, Resnick and Krane"*. This book will help you get a solid grasp of the theories and formulae you'll need to know. Emphasis should be placed on calculus too, since a lot of the problems can't be solved without it. Since the Olympiads are very competitive, you will need to be familiar with the question patterns to stand a good chance of qualifying. To do this, practice questions from past Olympiads. Comprehensive lists of these questions can be found at the Science Olympiad Blog, so start practicing. If you are stuck you could either go to the physics Olympiad forums or other educational forums: anywhere people would be willing to help.

Biology Olympiad: This is for people who love nature and living things, or doggos. Everyone loves doggos. Digressions aside, this Olympiad is very

fun but also tough if you're not prepared. It requires in-depth knowledge of biology, and the best place to start would be your school textbooks. There are also a few books available from the Olympiad site: bdbo.org which are quite helpful. Once you're done with those, make it a point to get *"Campbell Biology"*. This much-revered book contains all that you could want to know and more. It's also gigantic, with close to 1500 pages. This isn't for everyone, but if you can complete a significant chunk of this, you should be set for the divisional and national Olympiads. Of course, you'll need to do practical work when you make it to the national camp, but we'll cross that bridge when we get to it.

Earth Science Olympiad: The Earth Science Olympiad focuses on, as the name implies, the earth and its workings. It includes a host of different topics- the geosphere, the hydrosphere, the atmosphere, and the planetary system. This Olympiad requires knowledge of a lot of different fields, and the best way to obtain said knowledge is to study *"High School Earth Science"*, a free Wikibook. After studying this you'll know all the basics, however, that won't be enough. Since the international round is so focused on practical work, you'll need to have a good understanding of how to

apply what you've learned in the real world. The best way to do this would be to make it to the national team, where you'll be able to train at proper labs. You would also be trained by Fairuz at the national camp, which is as good a reason as any to try to make it to the team.

Informatics Olympiad: This Olympiad is about programming, for those of you who were unaware. In it, you have to solve a number of different problems in C/C++. If you already code, you'll be familiar with these languages. If not, you can learn them from the book(s) *"Teach yourself C"/"Teach yourself C++"*, both by Herbert Schildt.

Once you've learned the language, you need to start using it creatively for problem solving. This is where you have to spend the bulk of your time, practicing problems and trying to solve as many as you can. For practice you could look at UVa online judge. This site has thousands of programming problems, often categorized by difficulty or topic. These will teach you how to think and write your code efficiently to get the correct results. If you're adept at solving these, you could also look at SPOJ (sphere online judge) for more practice questions. Both these sites have forums where you can find hints and solutions for problems and queries.

Math Olympiad: This is one of the oldest Olympiads, and one which is widely

known. There are more than enough preparation materials on this Olympiad at the math Olympiad site:

www.matholympiad.org.bd. The broad topics that the Olympiad deals with are discrete mathematics, number theory, permutations, combinations, algebra and geometry. To brush up on the topics and learn to think critically, Fairuz recommends *"The Art and Craft of Problem Solving"* by Paul Zeitz. He believes that if you can complete this (fairly large) book, you will definitely make it past the divisional and national rounds and all the way to the national math camps. Besides this, you should check out past questions and try to solve them to get your mind in the right problem-solving mode.

Junior Science Olympiad: As far as Olympiads go, this is one of the newest. Having started in Bangladesh about two years ago, this is for students from grades 6-10. This is more of a gateway Olympiad, because it requires knowledge of four broad topics: mathematics, physics, chemistry, and biology. I would recommend our young readers to try out for this. To prepare, you could refer to the books already mentioned for mathematics, physics and biology. However, this would also be a great opportunity for you to identify what subject you really enjoy and decide what other Olympiads you want to participate in. Past questions can be found at www.ijsoweb.org/downloads. Use these to get the problem solving skills you'll need to (hopefully) make it to the internationals.

While Olympiads can be quite fun, they do require extensive prep to do well in. So good luck!

Wasique Hasan is at war with his evil twin Hasiqque Wasan. Tell him to grow up and stop making up fictional siblings at facebook.com/hasique.wasan

