Expert Scheduler Knowledge

There are some things that expert scheduler's know that are helpful in the upfront planning of round robin / pool play / regular season scheduling and in tournament elimination play. This is a list of the things that we have compiled, and how they relate to the EZ Sport Scheduler system.

League Schedule

Regular Season

Pool Play

Round Robin

These are all interchangeable terms for the same thing. It doesn't matter whether the schedule stretches out for weeks, as in a football or baseball season, or in one day as often is the case in a holiday futbol / soccer tournament. The point is that all teams in a division (or pool) play each of the other teams to determine the Pool Play rankings. These rankings determine the "winner" of the pool, and can be the end of the story. More often, these rankings determine the "seeding" or placement of these teams in to a highly competitive finishing tournament based on single or double elimination, where the winner advances to the next round.

Round Robin Scheduling

Number of Teams is Odd or Even

If you have an odd number of teams in a pool / division, you will need to add a fictional BYE team to round out the division to an even number of adjusted teams. Since only two opponents can play each other at a time, in any given round, one player will not have an available opponent to face.

Calculating Number of Rounds Needed

The number of rounds that a schedule requires for a pool / division is equal to one less than the number of adjusted (i.e. including the BYE team) teams participating in the pool play. If you have 8 teams, you will need 7 rounds to allow team to face every other opponent in the pool.

Calculating Number of Game / Time / Venue Slots Needed

The number of game / time / venue slots for a round will be equal to the adjusted number of teams divided by 2. A pool of 8 teams, when the bye team is included, will require 4 slots.

Calculating Number of Real Venues Needed

If there is a bye team in the pool, the number of "real" venues will be equal to the adjusted number of teams divided by 2 minus 1 (i.e. (# of teams / 2) – 1. In the case of 8 teams in a pool without a bye team, the number of real venues reduces to the number of teams / 2 (e.g. (8/2) = 4).

Calculating Number of Time Slots Per Round

The number of time slots per round is equal to the number of game / time / venue slots for a round, divided by the number of venues available rounded up. For example, if you need 3 "real" venue and you have 4, then ¾ = .75 is rounded up to 1. In other words, you have plenty of venues to handle the complete round for this division in one time slot. If you only have 2 venues, then 3/2 = 1.5 which rounds up to 2. You will need to time slots per round to complete the round for this division.

Calculating Total Number of Time Slots Needed

The total number of time slots needed for the entire pools schedule is equal to the Number of Rounds times the Number of Time Slots per round. To simplify the logic, the EZ Sport Scheduler system includes the fictional BYE Team and BYE Venue / Field in this calculation.

A fairly compact mathematical formula can be used to calculate this requirement based on two inputs: The Number of Teams (Bye included) and the Number of Fields (Bye included).

Teams = 8
Venues = 3

Slots = (Teams – 1) * Integer(((Teams / 2) / Venues) + .9999)
Slots = (8 – 1) * Integer(((8/2)/3) + .9999)
Slots = 7 * Integer((4/3) + .9999)
Slots = 7 * Integer(1.3333 + .9999)
Slots = 7 * Integer(2.3332)
Slots = 7 * 2
Slots = 14

This formula should be good for up to 1,024 teams in a division. However, be advised that this formula is only good when there are no constraints such as Day of Week, Time of Day, Fields, Minimum Days Between Games, or Minimum Hours Between Games.

Competition for slots between divisions must also be accounted for. This is why the Day of Week, Time of Day, and Field constraints are useful, to help you manage this competition.

With a bye team, and more venues that matches per round, you can get some teams scheduled to play twice in the same time slot, which is not usually physically possible. Specifying a Minimum Days or Hours Between Games can help alleviate this situation.

How To Get The Number of Slots Needed

Obviously you can enter a date and time one by one fourteen times, or however many time slots you need. The other way, if you are lucky enough to have repeating schedules, is to use the Repeat Days __ Times and Repeat Time __ Times fields on the Dates page. Any combination that whose product yields 14 or greater will work. You can:

Repeat Days 14 Times, Repeat Times 1 Time,
Repeat Days 1 Time, Repeat Times 14 Times,
Repeat Days 2 Times, Repeat Time 7 Times
Repeat Days 5 Times, Repeat time 3 Times

Venue / Field

This is the generic term for a "place to compete". Some sport specific terms are:

Futbol / Soccor	Pitch
Football	Field / Grid Iron
Basketball	Court
Baseball	Diamond / Field
Tennis	Court

Match Up / Game

This is the generic term for a "competition" between a pairing of two teams or individuals in a pool. Some sport specific terms are:

Futbol / Soccor	Game
Football	Game
Basketball	Game
Baseball	Game
Tennis	Match

Round Robin Seeding / Initial Seeding

To add excitement to the round robin pool play, an experienced scheduler will try to keep the stronger teams from playing each other as long as possible. They will often create multiple divisions within the same age group or competitive level to keep them completely separate until the elimination tournament brackets are played. They will then bridge these separated divisions in the elimination tournament to crown an ultimate victor. Assessing who is the strongest is your business and methods may vary. Often, data from prior competitions is used to try and rank opponents as they enter your league / tournament.

Within a pool / division, it is fairly easy to separate and initially seed the strongest opponents. In the EZ Sport Scheduler system, the 1st seed will always play the last seed, last. The 2nd seed will always play the next to last seed last.

For example, in a pool of 8 teams, the teams that play each other last are as follows:

Home Team #	Visitor Team #
1	8
2	7
3	6
4	5

The recommended initial seeding for this pool is:

Team #	Seed
1	1
2	3
3	5
4	7
5	8
6	6
7	4
8	2

The BYE team is usually listed last as the "weakest" opponent, so that the number 1 seed has the advantage of a first round bye. The highest ranking team in the match up also has the advantage of being the Home Team.

Single Elimination Tournament Scheduling

The total Tournament Bracket games always come in odd numbers:

- ❑ You will have 1 round of 1 Championship Game only,
- ❑ You may have 2 rounds, the first round consisting 2 Semi-Final games that feed into 1 Championship round and game.
- ❑ You may have 3 rounds, the first round consisting of 4 Quarter-Final games that feed into a Semi-Final Round of 2 games, which feeds into the final Championship round of 1 Championship Game.

The final tournament round will have one game.
All other tournament rounds will have a number of games equal to 2 raised to the power of the round number minus 1. Note: We label the

Championship round number 1, with each lower or feeder round number higher in sequence.

Example:

In a 4 round tournament where the final round is round 1, and the lowest or first round is round 4, the following table applies:

Round	Description	Number of Games
1	Championship	$2^0 = 1$
2	Semi-Final	$2^1 = 2$
3	Quarter Final	$2^2 = 4$
4	Final eight	$2^3 = 8$

The total number of single elimination tournament games will be equal to 2 raised to the power of the number of rounds minus 1:

Rounds	Total Games
1	$2^1 - 1 = 1$
2	$2^2 - 1 = 3$
3	$2^3 - 1 = 7$
4	$2^4 - 1 = 15$
5	$2^5 - 1 = 31$
6	$2^6 - 1 = 63$

The number of rounds (r) needed to allow all the teams in a division to play in at least one elimination round will be equal to the number of teams (n) divided 2 rounded up. r = integer((n/2) + .9999)

The number of Byes in the lowest round will be equal to 2 raised to the power of the round number minus the number of teams in the pool.

The number of "real" games in the lowest round will be equal to the number of teams minus 2 raised to the power of the round number – 1.

Examples:

Division Number of Teams	Tournament Rounds	Lowest Round Number of Games	Lowest Round Byes	Real Games
n	r=int((n/2)+.9)	$2^{(r-1)}$	$2^{(r)} - n$	$n-2^{(r-1)}$
2	1	1	0	1
3	2	2	1	1
4	2	2	0	2
5	3	4	3	1
6	3	4	2	2
7	3	4	1	3
8	3	4	0	4
9	4	8	7	1
10	4	8	6	2
11	4	8	5	3