Intro to RPI – Updated 3/6

What is RPI?
RPI, Rating Percentage Index is a statistical system used to comparatively rank teams. RPI is transparent as anyone can calculate the number by looking at standings.

What is the purpose of the RPI?
The purpose of the RPI is to potentially seed teams into region and/or state brackets using this statistical system. RPI can be used in a variety of ways such as who makes the postseason, ranking teams that are in the postseason, and/or re-seeding brackets at a certain round within a tournament.

What is the formula* of the RPI?
A sample formula to use is: RPI = (40% x MWP) + (40% x OWP) + (20% x OOWP)
- MWP (Modified Winning Percentage): Divide the number of wins by the number of total games played for your team accounting for the adjustment between classifications.
- OWP (Opponents Winning Percentage): Average of the winning percentage of a team's opponents (Note: this is not calculated via the combined record of the opponents, but rather by averaging the winning percentage of the opponents).
- OOWP (Opponents' Opponents Winning Percentage: Same process as OWP except the calculation is with the opponents of the team's opponent. **Note: there is an exception for out-of-state opponents – see below.

**How will out-of-state opponents be calculated?
Any Utah teams that play out-of-state teams will be expected to monitor those teams' schedules and scores on a weekly basis throughout the season to make sure scores are entered to MaxPreps. Coaches and athletic directors will be responsible for contacting the out-of-state schools if scores are not being entered. Currently, each of the states surrounding Utah (Arizona, Colorado, Idaho, Nevada, New Mexico & Wyoming) already require their schools to input scores into MaxPreps.

When calculating out-of-state opponents, states directly bordering Utah (AZ, CO, ID, NM, NV, WY) will count the same as UHSAA schools for both direct winning percentage and their opponents' winning percentage. For non-bordering states, their direct winning percentage will count in full (such as .750) and each of their opponents will have a .500 winning percentage assigned. Were this not the case, schools would be chasing thousands of opponents of out-of-state opponents over the course of a season. The .500 figure was selected because it is the average value of opponents' opponents winning percentages across all sports in the data that's been run.

Out of country opponents will not be counted and should be marked as 'Exhibition' games in MaxPreps.

Why use the RPI vs what has been used previously?
The RPI system will be an accurate reflection of all regular season and region/postseason games. Teams could be seeded into the state bracket based on their RPI ranking versus the previous region rotation which could result in the top teams in the same side of the bracket. Classifications with unbalanced regions could potentially qualify different numbers of teams into the tournament based on ranking as well.

Will postseason region games be taken into consideration?
Yes, all games played through the region qualifying tournaments will be included.

What is important to make RPI successful?
Score reporting is essential for an accurate RPI. Scores will be entered by coaches into the Teams by MaxPreps app or on MaxPreps.com. The UHSAA will publish the RPI on its website at uhsaa.org. Any other publication sites may not be accurate.

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Where should scores be reported?
Scores must be reported into MaxPreps by coaches (or designated school admin). The easiest way to report scores is through the free Teams by MaxPreps app.

Should scrimmages, games vs junior varsity teams, or independent UHSAA teams be reported?
No, only scores from regular season and region games vs varsity teams should be reported. When entering a game vs a non-varsity opponent, it is important a school selects 'Non-Varsity Opponent' as the opposing team in MaxPreps. Otherwise, the result will appear on the opponents' varsity schedule and factor into the RPI. If a school does put any of these games on their schedule, they should be marked as 'Exhibition' in MaxPreps.

How will the RPI be published?
The RPI will not be published anywhere except by the UHSAA. **The RPI will not appear on MaxPreps.com. Rankings seen on MaxPreps are separate and have no impact on the RPI**.

What sports will use the RPI?
Baseball, basketball, football, lacrosse, soccer, softball and volleyball.

What is the impact of cross-classification games?
A 15 percent adjustment will be used between classifications.

Classification	Game Value
1A	1
2A	1.15
3A	1.322500
4A	1.520875
5A	1.749006
6A	2.011357
Out of state opponents for sports with 6 Classes	1.458956 (the average of all 6 classes)
Out of state opponents for sports with 5 Classes	1.550748 (the average of 2A through 6A)

There is a one-time exception for a team playing down. That means, when a 3A team plays a 2A or 1A opponent for the first time on their schedule, that 2A or 1A opponent will count as a 3A team. Subsequent games against teams from lower classifications will count as their true classification. This modifier only comes into play when a team wins. Under the modified RPI system, each game is assigned a value based on that team's classification. Again, there is a 15 percent difference between them. So, for example, a 5A team will always have a game value of 1.749, regardless of who they're playing. The value of the win changes according to their opponent (unless the exemption comes into play). The result gives us a modified winning percentage. This is the number that will be used throughout the formula, including for their opponents, and the opponents of their opponents. So a team that goes undefeated but plays multiple teams below their classification may end up with a winning percentage of less than 100%.

See next page for an example.

For example, a 5A team (call them Team A) plays another 5A team (Team B), and beats them. They then play a different 5A team (Team C) and lose to them. The third week, the play a 4A team (Team D), and beat them. Finally, they play yet another 4A team (Team E), and beat them as well. Here's what the calculation would for Team A look like:

OPPONENT	RESULT	GAME VALUE	WIN VALUE	WINNING PERCENTAGE
Team B (5A)	W	1.749	1.749	1.00
Team C (5A)	L	1.749	0.000	0.00
Team D (4A)	W	1.749	1.749	1.00
Team E (4A)	W	1.749	1.521	0.87

Now, Team A in this scenario is 3-1. Their true (unmodified) winning percentage would be 0.75. However, with this modified system, where their total win value (roughly 5.019) is divided by their total game value (6.996), their modified winning percentage is 0.717.

Over the course of a season, if Team A were to go 9-1 with wins over all 5A teams the rest of the way, their modified winning percentage would be 0.887 (as opposed to a true winning percentage of 0.900). It is worth remembering that this number is 40 percent of the overall formula.

Does the score differential matter in the RPI?
The RPI is based on a win loss formula. Score differential will have no bearing on the RPI.

What if teams have a different amount of games?
The RPI formula works off the averages of three components: modified winning percentage, opponents' winning percentage and opponents' opponents winning percentage, so an imbalance of one or two games between teams will have virtually no impact on the ranking system.

Is a team's RPI based on the opponent's record at the time the game is played or is the RPI based on the final regular season record of their opponents?
The final RPI calculations used for seeding purposes will be based on the final records of all teams.

When I try to calculate teams OWP, I get different results than what is shown on the RPI page? How is OWP calculated?
OWP is the average winning percentages of a team's opponents. (Note: This is not calculated via the combined record of the opponents, but rather averaging each winning percentage of the opponents.) It is also important to remember that when calculating OWP (and OOWP), the head-to-head matchup between teams is taken out of the equation. That game already is figured in both teams' MWP. The RPI rationale for omitting that is so there isn't a double bonus or a double hit for that specific game to the teams, and you get an accurate reading of how teams rate when they are not playing each other.