



WhiteBox Nationals (Game Mode)

What is WhiteBox Nationals?

WhiteBox Nationals is an exciting new way for students to interact with WhiteBox Learning STEM applications. In our traditional classroom setup, the teacher selects a specification (a set of engineering requirements) for the entire class. Students create designs for this specification only, unless the teacher changes to a new spec manually. In WhiteBox Nationals, individual students automatically move through five increasingly challenging levels of competition. To move up in level, students must meet or exceed required level scores based on quiz and worksheet results, number of design iterations, and design performance.

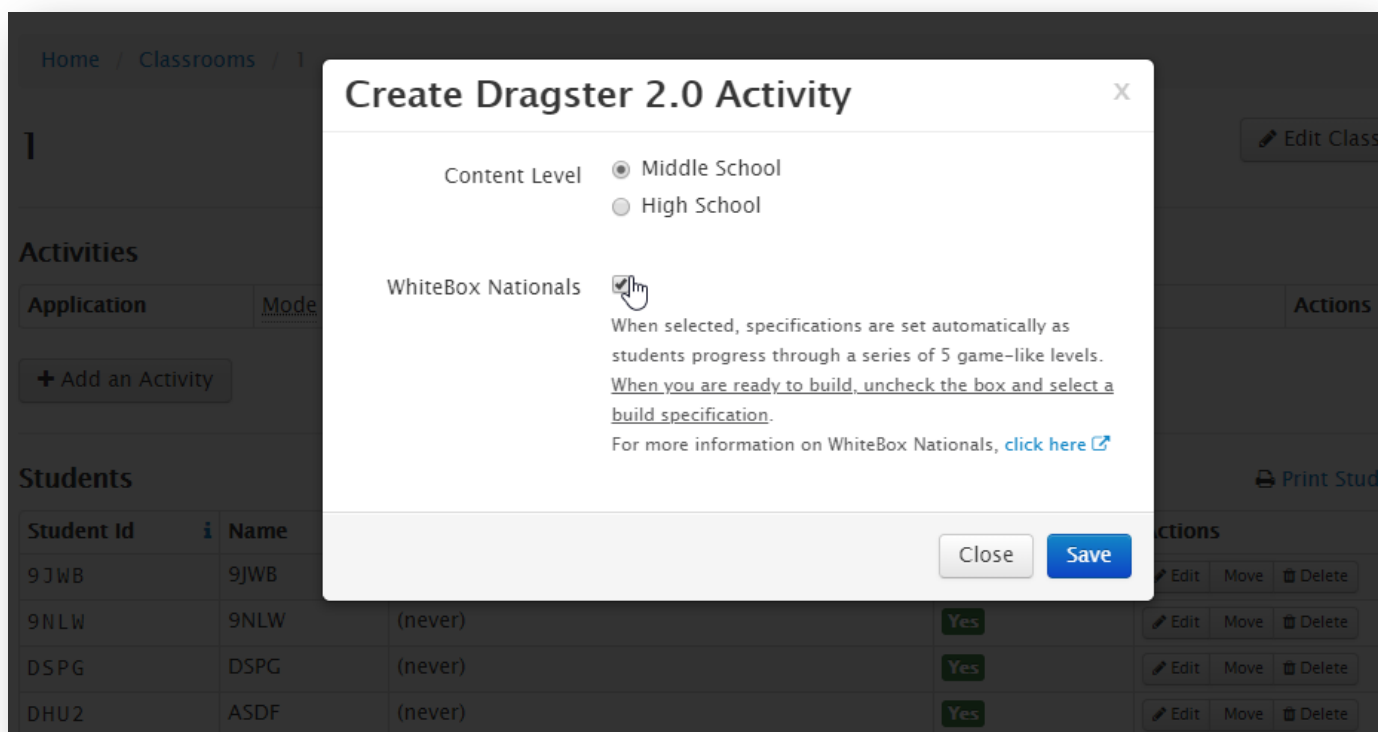
What's the Benefit?

There are two primary benefits of using WhiteBox Nationals.

- 1) *Research* - Since level scores depend (in part) on quiz scores, students will find that they need to work through the research materials to advance. Furthermore, since higher levels require higher quiz scores, students will recognize that they will benefit from a more intense focus on research.
- 2) *Motivation* - When students only compete locally, the same students often dominate the leader board (this is particularly true in larger districts). We believe this can be demotivating for both the students that make the leader board (they feel unchallenged) as well as those students that never make the leader board (they feel defeated). Whitebox Nationals incentivizes all students to *keep improving*.
 - More advanced students will automatically move into new competitions against similarly accomplished students from other districts, states, and even internationally. Level 5 competitions will consist of highly accomplished students from all over the world.
 - When students advance, they are removed from previous level competitions. This means that students that otherwise would not make the leader board will ultimately move into these positions. Not all students will make it to the most advanced levels, but we believe that all students will experience a greater sense of accomplishment.

How Do I Get Started?

Enabling WhiteBox Nationals is very easy – in fact, it's the default option for applications that support it. When adding an activity for your classroom, just click the "WhiteBox Nationals" checkbox.



Create Dragster 2.0 Activity

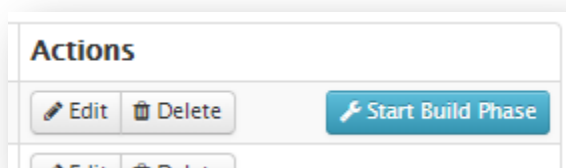
Content Level ☒ Middle School ☐ High School

WhiteBox Nationals ☒

When selected, specifications are set automatically as students progress through a series of 5 game-like levels. When you are ready to build, uncheck the box and select a build specification. For more information on WhiteBox Nationals, [click here](#)

Close Save

Exiting WhiteBox Nationals (whether you prefer the traditional setup, or when it's time to design for your physical build) is even easier. Beside each activity, to the right of the Edit and Delete buttons, you'll see a dedicated button to quickly exit WhiteBox Nationals and start the build phase:



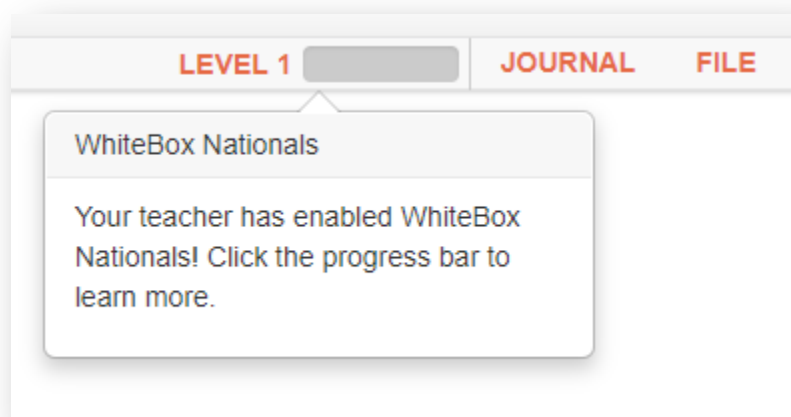
Actions

Edit Delete Start Build Phase

You can also de-select the checkbox for WhiteBox Nationals on the Edit activity form. We recommend students **logout and login again** after switching between traditional and WhiteBox Nationals modes.

What Differences Will Students See?

If you are already familiar with a WhiteBox Learning application things will look largely the same, with the addition of the student's current level and a mini progress bar in the top menu. When students are just getting started on Level 1 they'll also see a notification that WhiteBox Nationals has been enabled.



Clicking the Level indicator will open the WhiteBox Nationals info box. Again, when first getting started, students will see a more detailed introduction.

Welcome to WhiteBox Nationals!

In WhiteBox Nationals, you will progress through different and increasingly challenging design scenarios. To move from one level to the next, you'll need to meet a minimum **overall score**, which is made up from the three component scores below.

Grades

The grades you receive in the Research section make up 100 possible points of your overall score. You only receive credit for the exercises that have been completed. For example, if there are 4 quizzes and you scored 100% for the first quiz, but have not yet taken the other 3 quizzes, your grades component score will be 25. Be sure to complete all of the research materials to earn the highest score possible, and remember that a clear understanding of this material will also help you make a better design.

Performance

You can also earn up to 100 points based on the performance of your design. Each level will have its own performance benchmarks according to the assigned specification. Designs that meet the best performance target will receive the full 100 points, and partial points are awarded as your design approaches this target.

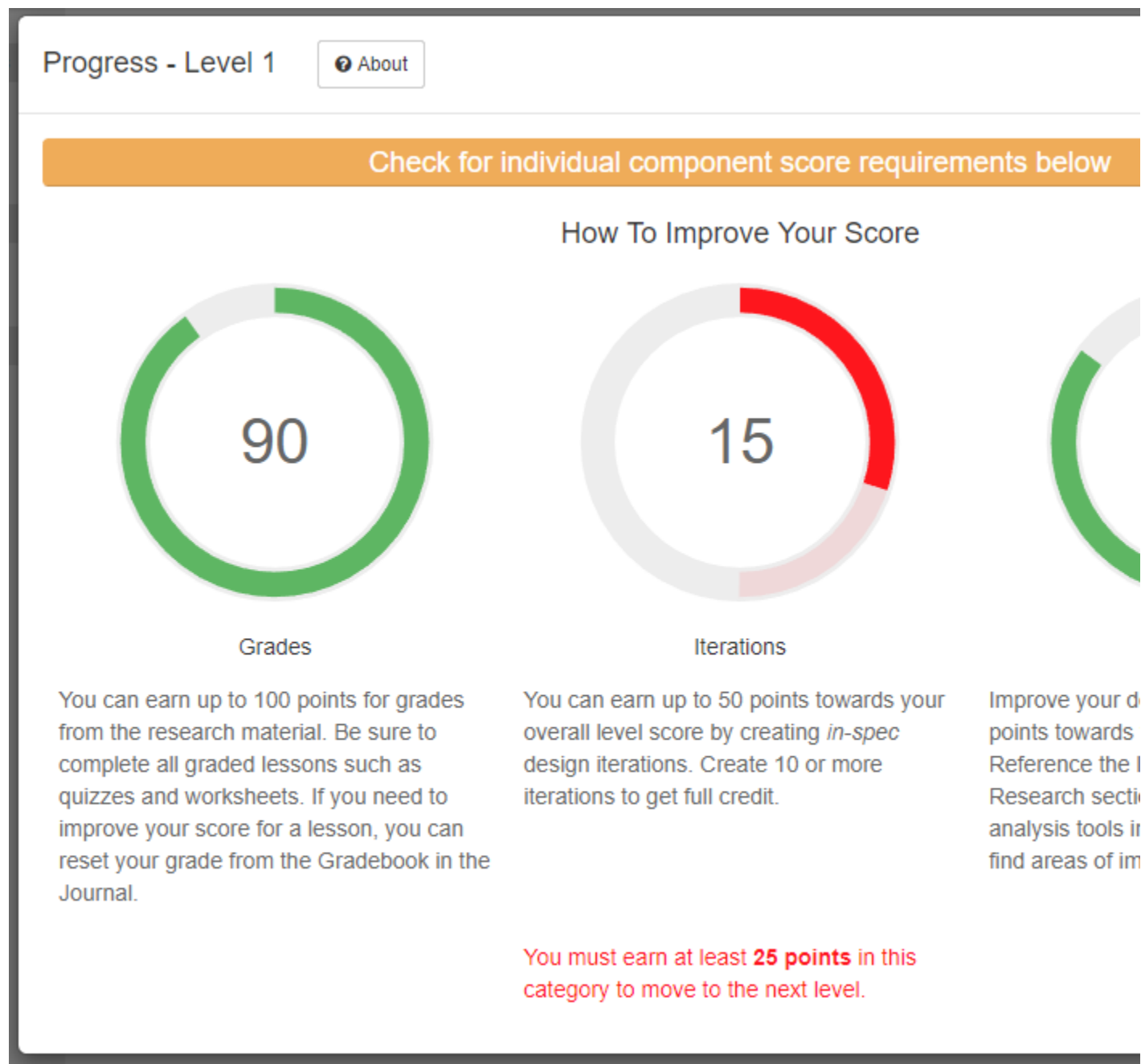
Iterations

An additional 50 points can be earned by testing *in-spec* iterations. An important part of the engineering design process is analysing your design performance and making adjustments to improve the next iteration, or *revision*. Only in-spec revisions are counted, so be sure to check that your design meets specifications in the spec report (found in the OUTPUTS tab) before testing.

When you move to the next level your grades component score is retained, while your iterations and performance scores are reset to zero so that you can earn these based on the next level's specifications. Each level may have different component score requirements. You can see your level progress at any time by clicking the progress bar in the top menu.

[Get Started](#)

After clicking the Get Started button, students will see their current progress with individual progress meters for Grades, Design Iterations, and Design Performance.



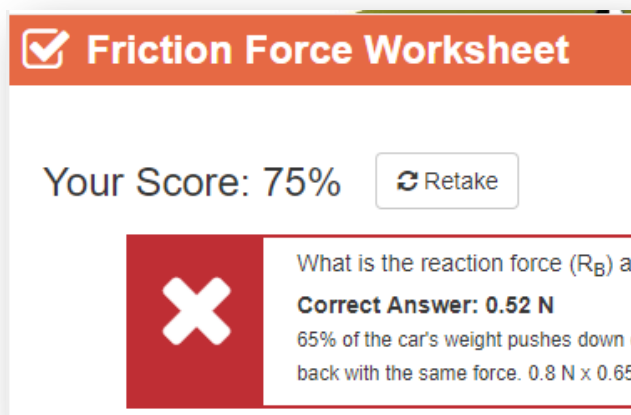
How to Progress Through Levels

Students can earn up to 250 points per level. The **Grades Component** provides up to 100 possible points and is based off the total possible average for all graded lessons. For example, if there are 3 quizzes and 2 worksheets (all weighted the same) and a student has scored 90% on each lesson, the student will earn 90 points for the grades component. The **Iterations Component** is worth up to 50 points. Each *in-*

spec design iteration that is saved and tested will earn 5 points. To earn the full 50 points for this component, students would need to save 10 design iterations. However, many students may not need to revise their design 10 times to reach a high enough total score since the **Performance Component** is worth up to 100 points. The performance score is automatically calculated by comparing a student's design with a benchmark for the level. In other words, if a design achieves 85% of the best possible outcome (i.e. race time, capacity, etc.) the student will earn a score of 85.

Some levels will have individual section requirements. For example, in the scenario above students must score at least 180 points combined from all three categories, and at least 25 out of a possible 50 points in the Design Iterations category. The 180-point minimum total score has been met, but the student has only created three iterations worth five points each, so two more iterations are needed to meet the iterations component requirement.

While iterations and performance scores reset after leveling-up, grades scores are carried over from level to level. Since grade scores are such an important part of WhiteBox Nationals and a student's opportunity to advance, students can retake a quiz or worksheet to improve their score. When quiz results are displayed and the quiz score is less than 100%, students will see a Retake button:

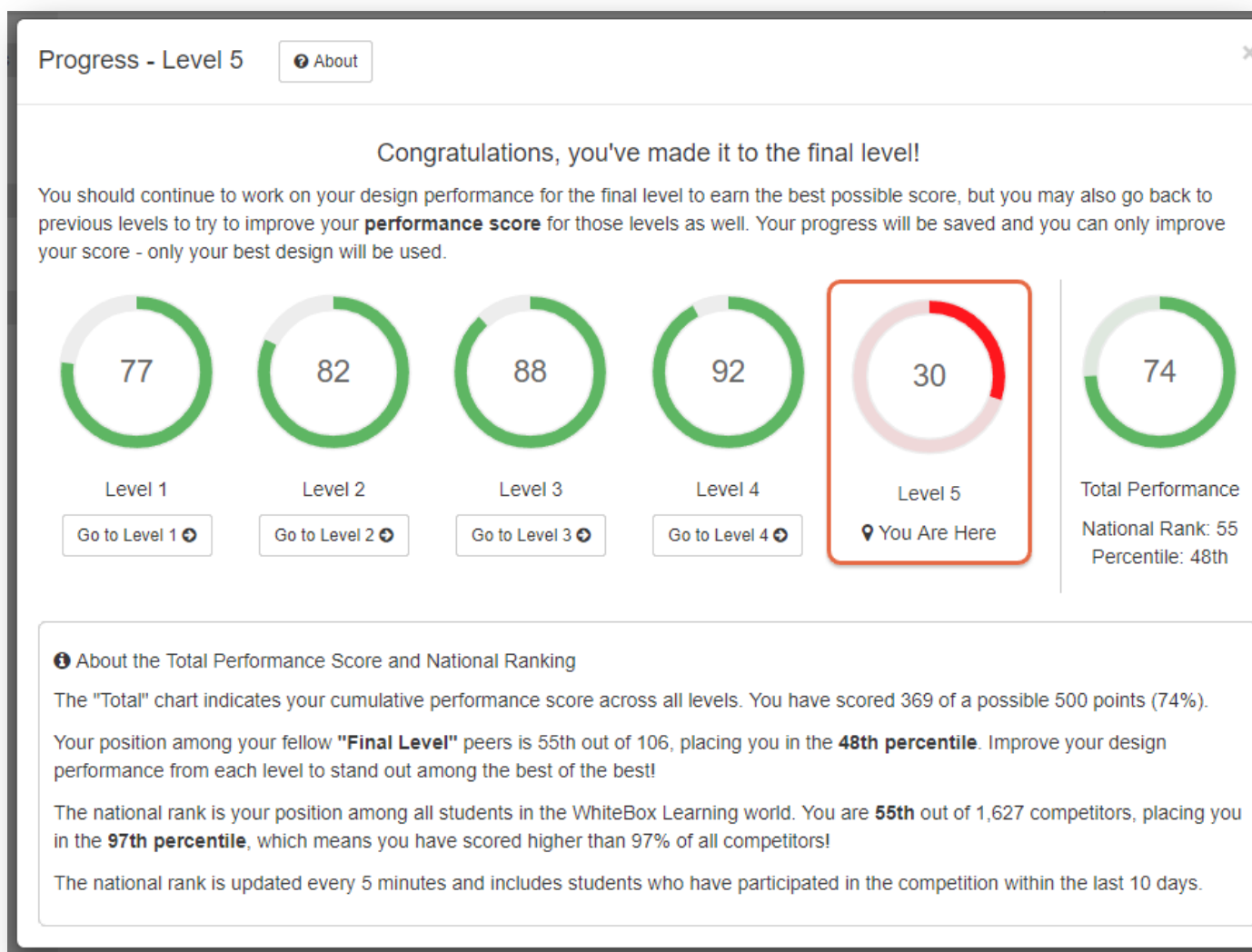


Considering that quizzes and worksheets are interactive and explain the solution, even after answering the question incorrectly, a second attempt will result in taking a conceptually similar quiz with different questions that cover the same material. Students are limited to one retake, so be sure to re-read the material and have a clear understanding before trying again! Ideally students will carefully read through all the research materials before trying to advance in levels, but higher levels will enforce this by requiring a minimum total level score that will inherently need all quizzes and worksheet to be completed to earn a high enough grades score.

What's the Endgame?

Hard working students who make it to Level 5 will qualify for a national competition based on their total design performance scores from all 5 levels. They'll first want to score as high as possible on the Level 5 challenge but may also go back to any level and make improvements to their designs and aim for the full

100 points from the performance component score. Level 5 students can jump to and from any level by clicking the “Go to Level” buttons on the WhiteBox Nationals detail screen.



Not all students will make it to Level 5, but they should keep working on improving designs and understanding the research material as best as possible. All students will put their knowledge to the test when it's time to exit WhiteBox Nationals and start the build phase.

What Differences Will the Teacher See?

Your Teacher Control Center will look very similar to the traditional manually selected specification mode. On the classroom progress page (from the Monitor tab), you'll see the progress charts that are present in traditional mode, and you'll also see a table with students grouped by current level. The table shows each student's current level, scores for the grades, iterations, and performance components for the level, and the time since the student was last active in WhiteBox Nationals. The progress bars

are color coded to indicate progress towards level requirements and show a vertical bar to indicate the required total points for the student's current level.

WhiteBox Nationals Progress (show detailed view)

Student	Level	Progress ?	Grades			Iterations	Performance
			Scores				
Last Activity							
Level 5							
Katherine J.	5	<div><div>198</div></div>	99	40	59	2 months ago	
Level 3							
Albert E.	3	<div><div>237</div></div>	100	50	87	2 months ago	
Ben F.	3	<div><div>100</div></div>	100	0	0	2 months ago	
Dorothy V.	3	<div><div>191</div></div>	100	10	81	2 months ago	
Mary J.	3	<div><div>98</div></div>	98	0	0	2 months ago	
Max P.	3	<div><div>194</div></div>	100	20	74	1 month ago	
Level 2							
Henry F.	2	<div><div>96</div></div>	96	0	0	2 months ago	
Nikola T.	2	<div><div>183</div></div>	83	30	70	1 month ago	

You can also click the “show detailed view” link for a more detailed table that shows each student's individual level scores.

The individual student detail page also shows current level progress and level history information, in addition to the normal information displayed on this page in traditional mode.

WhiteBox Nationals Stats

Current Level 5 of 5
Current Spec [Game Mode L5](#)
Aggregate Score 107/250 (level requires 250)
Grades Score 77/100 (level requires 100)
Iterations Score 0/50 (level requires 50)
Performance Score 30/100 (level requires 100)
Level Progress

107

	Iterations Score	Performance Score
Level 1	50/50	77/100
Level 2	40/50	82/100
Level 3	50/50	88/100
Level 4	45/50	92/100
Level 5 Current	0/50	30/100

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