



# School Bell Schedules

Student Achievement Committee

Wake County Board Of Education

*September 26, 2022*

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## Desired Outcomes

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1. Share research/data:
  - i. Biological changes in adolescents' sleep rhythm
  - ii. Changes in student performance as a result of shifts in start times - a study of five WCPSS high schools
2. Recap bell schedule information previously shared with the Board
3. Provide one possible example model for a bell schedule shift
4. Consider additional implications, next steps, and timeline
5. Receive input from the Board of Education

# Overview - Previous Work

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Wake County Board of Education requested review of structures to shift high school morning start times later based upon studies by American Pediatric Association & others.

## **March 16, 2021 Board Work-Session**

- Reviewed other districts implementation of shift to later start times
- Reviewed WCPSS options to shift Bell Schedule Structure to provide later HS start times

## **May 18, 2021 Board Work-Session**

- Recap of 3 options presented on March 16
- Board worked through a series of discussion questions to begin the process of adjusting the bell schedules

## Alignment to WCPSS Strategic Plan

### WCPSS Core Belief #4

The Board of Education, superintendent, and all staff, while **sustaining best practices**, will promote and support a culture of continuous improvement, risk-taking, and innovation that results in a high-performing **organization focused on student achievement.**

### WCPSS Core Belief #7

Every student and all staff deserve to work in **optimal learning environments** supported by sufficient resources, well-maintained facilities, and **effective operational systems.**



## Adolescents and Sleep: Biological Changes in Sleep Rhythm



# Adolescents and Sleep: Biological Changes in Sleep Rhythm

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The American Academy of Pediatrics **recommends that U.S. secondary schools begin 8:30 a.m. or later** to better align with the circadian rhythms of adolescents. (Owens, Au, Carskadon, Millman, and Wolfson, 2014b, p. 646)

National data show that **approximately 60% of middle school students and 87% of high school students do not get enough sleep.** (Bastian & Fuller, 2018; National Sleep Foundation, 2006)

Research has shown that the average American adolescent is **chronically sleep deprived.** (AAP, 2014; Bowers & Moyer, 2017; Minges & Redeker, 2016)


# Adolescents and Sleep: Biological Changes in Sleep Rhythm

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Around the onset of puberty, most adolescents experience “phase delay”—later sleep onset and wake times which **shift their bodies’ internal clocks back by up to two hours**. (AAP, 2014; Boergers, 2015; Bowers & Moyer, 2017; Carskadon, 2011; Foley, 2021; Minges & Redeker, 2016).

This natural shift in circadian rhythms makes it **more difficult to fall asleep before 11:00 p.m. and wake up before 8:00 a.m.** (AAP, 2014; Bastian & Fuller, 2018; Bowers & Moyer, 2017; Carrell et al., 2011; Foley, 2021; Wheaton et al., 2016).

In other words, **adolescents are biologically programmed to fall asleep later** in the evening. Even though they fall asleep later in the evening, they still require 8 to 10 hours of sleep every night. (Boergers, 2015)



**Impact on Student  
Performance  
as a Result of Shifts in  
Start Times**

# Changes in Student Performance as a Result of Shifts in Start Times

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28% of middle and high school students reported **falling asleep in school** at least once a week. (National Sleep Foundation, 2006)

Lack of sleep can cause irritability and **increases the risk for depression and anxiety**. (Boergers, 2015; Bowers & Moyer, 2017)

Insufficient sleep can **negatively influence academic performance**. (Dewald et al., 2010)

Lack of sleep can lead to **higher rates of tardiness, absenteeism, and overall school performance**. (Bowers & Moyer, 2017; Minges & Redeker, 2016)

# Changes in Student Performance as a Result of Shifts in Start Times

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## Students with healthy sleep habits:

- Perform better in school
- Show increased standardized test scores
- Boast higher GPA
- Have better memory function
- Are at less risk of dropping out of school
- Demonstrate overall improved physical and mental health

Dewald, J. F., Meijer, A. M., Oort, F. J., Kerkhof, G. A., & Bögels, S. M. (2010); American Academy of Pediatrics. (2014); Bastian & Fuller, (2018); Boergers, (2015); Meltzer et al., (2021); Minges & Redeker, (2016); Wahlstrom et al., (2014); Wheaton et al., (2016); Lenard, M., Morrill, M. S., & Westall, J. (2020).

# Changes in Student Performance as a Result of Shifts in Start Times

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## Study of Five Wake County High Schools

- Generally, ACT scores were not impacted by variation in start times.
- With early start times measures of student engagement were negatively impacted:
  - **Absenteeism increased**
  - **Tardiness increased**
  - **Dropout rates increased**

Lenard, M., Morrill, M. S., & Westall, J. (2020)



**Recap:**  
**Bell Schedule Information**  
**Previously Shared**

## Recap: Bell Schedule Information Previously Shared

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1. Shift the Current 3-Tier Structure to Later Start Time for All Levels  
(All students would start school at a later time.)
2. Swap Elementary and High School Current Tier Assignments  
(Keep the district's current tier starting times.)
3. Swap Elementary and High School Current Tier Assignments  
(Provide additional examples of varying start times for all three levels.)

## Recap: Bell Schedule Information Previously Shared

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**Example #1:** Shift the Current 3-Tier Structure to Later Start Time for All Levels (All students would start school at a later time.)

	<u>Current</u>		<u>30 minute shift</u>		<u>45 minute shift</u>		<u>60 minute shift</u>	
<b>HS</b>	7:25 AM	2:20 PM	7:55 AM	2:50 PM	8:10 AM	3:05 PM	8:25 AM	3:20 PM
<b>MS</b>	8:30 AM	3:00 PM	9:00 AM	3:30 PM	9:15 AM	3:45 PM	9:30 AM	4:00 PM
<b>ES</b>	9:15 AM	3:45 PM	9:45 AM	4:15 PM	10:00 AM	4:30 PM	10:15 AM	4:45 PM

## Recap: Bell Schedule Information Previously Shared

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**Example #2:** Swap Elementary and High School Current Tier Assignments  
(Keep the district's current tier starting times.)

Elementary Schools become 1st Tier

**ES**

7:30 AM

2:00 PM

Middle Schools remain 2nd Tier

**MS**

8:15 AM

3:00 PM

High Schools become 3rd Tier

**HS**

9:15 AM

4:10 PM

## Recap: Bell Schedule Information Previously Shared

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**Example #3:** Swap Elementary and High School Current Tier Assignments  
(Provide additional examples of differing start times for all three levels.)

	<u>30 minute shift</u>		<u>45 minute shift</u>		<u>60 minute shift</u>			
<b>ES</b>	7:30 AM	2:00 PM	8:00 AM	2:30 PM	8:15 AM	2:45 PM	8:30 AM	3:00 PM
<b>MS</b>	8:15 AM	3:00 PM	8:45 AM	3:30 PM	9:00 AM	3:45 PM	9:15 AM	4:00 PM
<b>HS</b>	9:15 AM	4:10 PM	9:45 AM	4:40 PM	10:00 AM	4:55 PM	10:15 AM	5:10 PM

# Bell Schedule Shift

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## Example model for a bell schedule shift:

Example #2: Swap elementary and high school current tier assignments and keep the district's current tier starting times.

<b>ES</b>	7:30 AM	2:00 PM
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<b>MS</b>	8:15 AM	3:00 PM
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<b>HS</b>	9:15 AM	4:10 PM
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- Allows for a later start time for high school students
- High level route modeling outcomes support the timeframes
- Place ES on Tier 1 - less wait time for younger students
- Other districts used this transportation/bell schedule model



# Additional Implications

## Next Steps

### Timeline

## Additional Implications...Stakeholder Impact

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- Parent schedules and ability to work with an early school start time for elementary students and later school start time for high schoolers
- School personnel schedules including those working second jobs
- Before & After School Providers (school-run programs, 3rd party off-site programs, sibling care, etc.)
- After School Activities (athletics, arts, clubs, student jobs, etc.)

## Next Steps

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Begin gathering stakeholder input and feedback:

- Parents
- Students
- Staff by type (classroom teachers, coaches, athletic directors, principals, etc.)
- Before & After School Providers
- Businesses
- Community Organizations

# Next Steps

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- Research reviews, interviews (other districts who have adjusted to a later high school start time)
- Survey (parents, students, athletic directors, teachers, principals)
- Focus Groups (parents, students)
- Town Halls (regionally for parents and community groups)

# Timeline

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## **September 2022**

Share overview with the Board of Education - gather feedback  
Create/finalize process for gathering stakeholder input

## **October-December 2022**

Launch survey to stakeholder groups  
Meet with various stakeholders (focus groups, town halls)

## **January 2023**

Compile information gathered from stakeholders

## **February-March 2023**

Share stakeholder information with Board of Education  
Board of Education provides staff with direction  
Staff will develop bell schedule based on Board of Education feedback and direction

## **April 2023**

Adopt 2024-2025 WCPSS Bell Schedule

## **Adolescent Sleep and School Start Times:**

- National data show that approximately 60% of middle school students and 87% of high school students do not get enough sleep.
- The average American adolescent is chronically sleep deprived.
- The American Academy of Pediatrics recommends that U.S. secondary schools begin after 8:30 a.m. to better align with the circadian rhythms of adolescents.

## **Academic Performance:**

- Harmful effects of early start times may not be well captured by considering test scores alone.
- Rise in absenteeism and tardiness rates, as well as higher rates of dropping out of high school.

# Summary

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## Example Bell Schedule Model:

- Tier 1: Elementary Schools
- Tier 2: Middle Schools
- Tier 3: High Schools

## Next Steps:

- Spend the next few months gathering feedback from stakeholders
- Bring findings to the Board early next year
- Adopt 2024-25 bell schedule in April 2023

# Dialogue and Questions

FROM HERE,  
ANYTHING  
IS POSSIBLE.