



www.hearttechplus.com

Heart Tech Plus Testimonials:

"This system dramatically improves my student's engagement and self intrinsic motivation. The amount of data that I'm able to collect is incredible. This system also reinforces the importance of movement in PE. I highly recommend finding the funds to purchase this system."

-SHAPE America High School National Teacher of the Year

"The Heart Tech Plus system has drastically improved my physical education program. Students love the projection and are able to track their physical activity levels throughout class. This has motivated my students to move more in class and Heart Tech Plus has helped my students take ownership of their learning."

-SHAPE America Middle School District Teacher of the Year

"I have been using HTP for the past three years. I am impressed by the instantaneous data my students receive. HTP's desire to improve their product keeps us at the forefront for technology in PE. Their new sensors are lightweight with Bluetooth capability, increasing access for more of our students. The technology keeps our content fresh and relevant."

-Middle School Physical Education Teacher

"HTP sensors have been a game changer in my PE classes! Students love them, they're easy to use and extremely comfortable! The accountability has been great! There's not a better product out there, not to mention the knowledge of their sales force."

-Elementary Physical Education Teacher

"I like wearing the heart rate monitors because they motivate people to get a higher heart rate and get more points so they don't try to slack and so they can do more."

-7th Grade Student

Heart Tech Plus Videos:

[Heart Tech Plus Sensr 4.0 & HOME App](#)

[Heart Tech Plus System Overview](#)

[Heart Tech Plus SHAPE Presentation](#)

[Heart Tech Plus in a Denver School](#)

[Heart Tech Plus in a School](#)

Contact: Rich Butterworth - rich@hearttechplus.com
Brad Hull - brad@hearttechplus.com

www.hearttechplus.com



Why Use Heart Rate Monitors?

- Student Accountability
- Goal Setting
- Formative Assessment on Health-Related Terms
- Gets Students Moving
- Motivates Students (Points System)
- **Students Start to “Own” Their Physical Activity**
- It Makes P.E. As AUTHENTIC As Possible In This Pandemic
- Students Love It!

Why Teach Using Heart Rate?

- Heart rate is the only true and objective way you can measure the effort of your students. You know whether or not students are trying their best. NO OTHER SUBJECT CAN ASSESS THIS!
- **Heart rate monitors give your students a continuous “window” into their own body that no other device can provide within the P.E. setting.**
- **A great way to get your students to understand the “WHY.”**
- A great motivation tool that can help teach your students what effort in each of the different heart rate zones feel like.

What Can You Teach With Heart Rate Monitors?

1. Maximum Heart Rate-Students **understand each individual is different and MHR is not a “one size fits all”** approach. It cannot be determined by any mathematical formula.
2. Target Heart Rate Zone-Students understand that in order to get the most benefits from exercise, their heart rate needs to be between 60%-90% of their MHR.
3. Resting Heart Rate: A **person’s** heart rate when they are resting or sleeping. **A normal resting heart rate for adults range from 60 to 100 beats per minute. Generally, a lower heart rate at rest implies more efficient heart function and better cardiovascular fitness. For example, a well-trained athlete might have a normal resting heart rate closer to 40 beats per minute.**
4. Recovery Heart Rate-Students understand the higher their recovery heart rate is, the better. Their goal should be to improve their RHR with improved cardiovascular levels over time.
5. Ambient Heart Rate-Students understand this is their HR when sitting quietly.
6. Delta Heart Rate-Students understand this is the difference in heart rate number in beats per minute from lying down to standing up.
7. T1 and T2 Thresholds-Students understand that their T1 threshold HR is when they feel their breathing increasing (60%-70% of MHR) and that their T2 threshold HR is when their breathing is so increased that talking becomes hard to speak comfortably (80%-90% of MHR).
8. Calories Burned-Students understand the correlation between exercise intensity and the amount of calories burned in an exercise session.

Research and Links to Support the Use of Heart Rate Monitors in Physical Education:

- [CDC Physical Activity Facts](#)
- [How Wearable Technology Can Personalize Physical Education](#)
- [Naperville Central High School Article](#)
- [The Evolution of Heart Rate Monitors in Physical Education](#)
- [Why Heart Rate Monitors are Essential for Your PE Class](#)

Standards and Outcomes:

SHAPE America Standards That Address Heart Rate Monitors:

Standard 3: The physically literate individual demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Standard 4: The physically literate individual exhibits responsible personal and social behavior that respects self and others.

Standard 5: The physically literate individual recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

Standards and Outcomes:

SHAPE America Grade Level Outcomes That Address Heart Rate Monitors:

- S3.M8.8: Uses available technology to self-monitor quantity of exercise needed for a minimal health standard and/or optimal functioning based on current fitness level.
- S3.M13: Defines how the RPE scale can be used to adjust workout intensity during physical activity.
- S3.M16: Participates in moderate to vigorous aerobic physical activity for at least 60 minutes per day at least 5 times a week.
- S3.H10.L1: Calculates target heart rate and applies that information to personal fitness plans.
- S4.M1.8: Accepts responsibility for improving one's own levels of physical activity.**
- S4.M2.8: Uses effective self-monitoring skills to incorporate opportunities for physical activity outside of school.

What is MVPA in Relation to Heart Rate in PE?

- According to the Centers for Disease Control and Prevention (CDC), Moderate to Vigorous Physical Activity is:
 - **For moderate physical activity, a person's heart rate should be 50% to 70% of his or her maximum heart rate. For vigorous physical activity, a person's heart rate should be 70%-85% of his or her maximum heart rate. This maximum heart rate is based on the person's age (220-age).**
- **SHAPE America's National Standards and Grade-Level Outcomes** document states the importance of emphasizing skill development and having at least 50% of the time in class spent moving at the MVPA level.

[CDC: What is MVPA?](#)

Maximum Heart Rates in Physical Education:

- The formula $220 - \text{Age}$ is no longer appropriate to use. This formula doesn't take differences into account. All individuals are different.
- A great way to determine a student's maximum heart rate in physical education is to have them perform multiple vigorous activities in a week such as the mile run, PACER test, and fitness games (for “disguised fitness”). When they stop, determine what their peak heart rate was each day. After the week of vigorous activities, take the student's highest heart rate and have that number as their maximum heart rate.
- You can differentiate heart rate settings based on maximum heart rates and current fitness levels.

Heart Tech Plus Introduction:

Heart Tech Plus is an innovative wearable heart rate based system that uses wireless and cloud technology to accurately and conveniently monitor physical activity.

Heart Tech Plus delivers a total solution for physical education programs both at HOME and in the classroom.

- REALTIME DATA COLLECTION
- NO DOWNLOADING REQUIRED TO VIEW METRICS
- INDIVIDUAL AND GROUP VIEWS
- TEACHERS CAN ACCESS GROUPS OR INDIVIDUALS AT ANY TIME
- FLEXIBILITY FOR EASE OF USE
- STUDENTS AND PARENTS CAN TRACK PROGRESS ONLINE AT HOME
- MONITOR UP TO ONE HUNDRED USERS AT ONE TIME
- RELIABLE HARDWARE AND SOFTWARE

Commitment To YOU:

- Lifetime support.
- Heart Tech Plus has a full time customer service team, dedicated to responding to all your needs.
- All future software updates and upgrades free.
- No annual fee.
- Network of teachers to assist with curriculum implementation of heart rate and pedometer/accelerometer technology.
- 5 year warranty (best in the industry).

Commitment To Students' Data Security:

- Connection to database is encrypted.
 - Administrative logins to application are required to have strong passwords.
 - A disaster recovery plan, data destruction plan and data backup/restore plan exists for this application.
 - Data center infrastructure has undergone an SSAE 16 or SOC 2 Type II review.
 - Application requires authentication for access to data. Access to application is through unique and individually identifiable means. Every login is tied to a real, specific human; no shared logins.
 - Sensitive application data (including student/teacher data and any PII or PHI) is encrypted at rest and in transit.
 - User credentials, database & other application interface credentials are encrypted at rest & in transit.
 - Application log is time stamped and server is time-synchronized.
 - The application audit records are not vulnerable to unauthorized deletion, modification, or disclosure.
- District maintains ownership of all data, even after termination of contract.*
- And much more...*

“We looked at all the systems out on the market and Heart Tech Plus was the only system that met our strict requirements to store our students data. If your students data is important to you, you MUST go with Heart Tech Plus.” –Robert

Sensr 4.0:

- ACCURACY: We utilize the latest optical heart rate sensor technology.
- Rechargeable: You never have to worry about replacing batteries. Easy magnetic connection with option of charging storage case for 30 units.
- Comfortable: Soft neoprene strap with velcro fasten/release which can be worn on the forearm, bicep or calf-NO CHEST STRAP.
- Water resistant and sweat proof
- Built in Accelerometer (step counting)



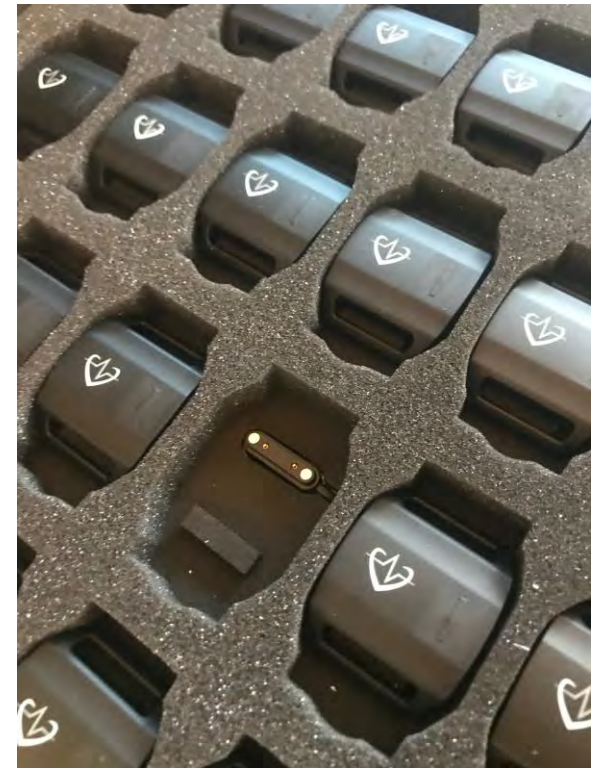
Operating the Sensr 4.0:

- Worn on the upper forearm, bicep or calf.
- Press the power button once on the top of the sensor to turn on. The blue indicator light will begin blinking.
- The sensor can be turned off by pushing the power button.
- Charging:
 - Blinking green and red lights means charging
 - Solid green light means fully charged
- Zone Lights:
 - 119 BPM or lower-blinking blue light
 - 120-179 BPM-blinking green light
 - 180 BPM or higher-blinking red light



Sensr 4.0 Charging/Storage Case:

Allows you to safely secure, store, and charge up to 30 **Sensr 4.0's** at the same time.



Group App-What You Need:

What Heart Tech Plus Provides:

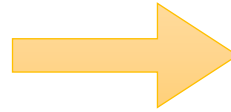
- Heart Tech Plus HUB
- Heart Tech Plus Sensr 4.0's
- Heart Tech Plus Web Portal License

What You Need To Provide:

- iPad or iPhone: Minimum iOS 12. iOS 13 or iOS 14 is best.
- Projection System:
 - Projector
 - Apple TV
 - iPad dongle to connect iPad to projector
 - HDMI cable

How the Group App Works:

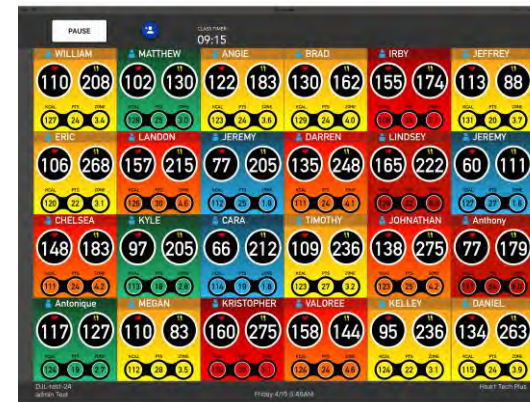
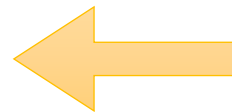
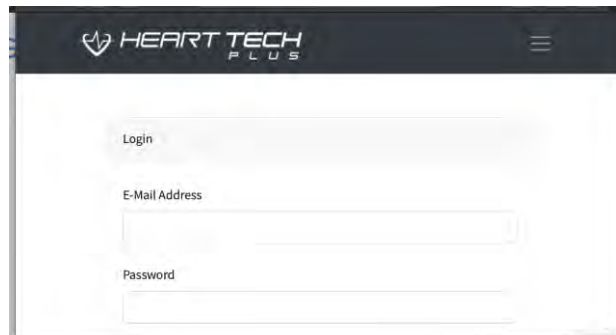
Students wear Sensr 4.0; heart rate and steps data sent to HUB



HUB receives and translates data and sends to iPad



Heart Tech Plus secure portal stores all data and allows review and reporting of students and classes



Group App iPad displays data live and at the end of class sends data to the Heart Tech Plus secure portal.

HUB (for the Group App):

- The Heart Tech Plus HUB allows our Sensr 4.0 heart rate monitors to communicate all heart rate and step data live with the iPad seamlessly.
- The HUB allows for the opportunity to have larger class sizes and can be daisy-chained* to allow for greater range if required.
- Rechargeable-you never have to worry about replacing batteries.

* daisy-chain(ed): **Connecting 2 or more HUB's wirelessly to increase range.**



Group App:

- The Heart Tech Plus Group App currently supports the iOS environment.
- The Heart Tech Plus Group App was designed for students to view real time heart rate and steps data on the iPad.
- The data is displayed on the iPad and projected on the wall or with a TV.
- Students can view their heart rate and step information in real time and will know if they are working at the appropriate level of intensity (MVPA).
- Privacy is taken seriously and Heart Tech Plus complies with national student piracy guidelines.
- Multiple display types (Heart Rate Only, Heart Rate Plus MVPA, and Heart Rate Plus Steps).



- 5 Zones based on percentage of max (blue, green, yellow, orange, and red).

Group App:

Information displayed-real time data collection

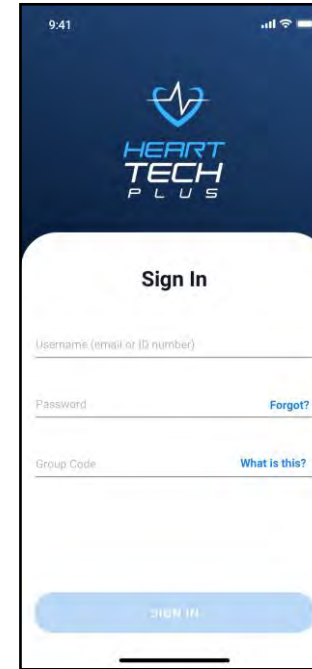
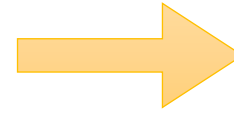
- Individual student/client and class/group reporting
- Teacher, administrators, instructors, coaches and gym owners can access data remotely
- Indoor and outdoor use with 75 meters. (Range can be increased by adding HUB's)
- Continuous heart rate
- Percentage of max heart rate
- Average heart rate
- Calories
- Collect points for rewards or grading
- Live step count
- Total steps
- Steps per minute
- Recovery clock
- MVPA clock (MVPA-Moderate to Vigorous Physical Activity)

Backside of Tile:



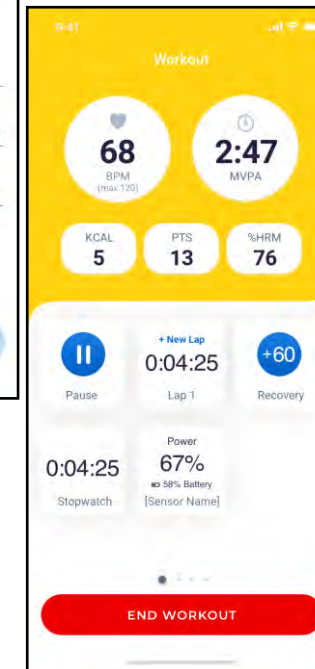
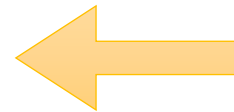
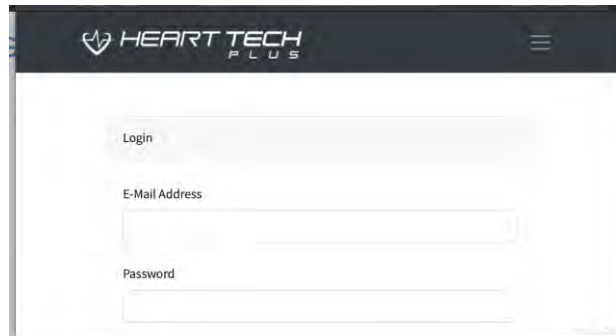
How the HOME App Works:

Students wear Sensr 4.0; heart rate and steps data sent to HUB



HOME App tracks students remotely using an iPhone or Android

Heart Tech Plus secure portal stores all data and allows review and reporting of students and classes



The data syncs to our secure web portal where the data is collected and reviewed

HOME App-What You Need:

What Heart Tech Plus Provides:

- Heart Tech Plus Sensr 4.0 (if you want heart rate data)
- Heart Tech Plus License (only required to upload data to portal and view reports)

What You Provide:

- iOS or Android device
- Motivational workouts for your students

Heart Rate & MVPA Workout (Sensor Needed)-HOME App:

Main Page:

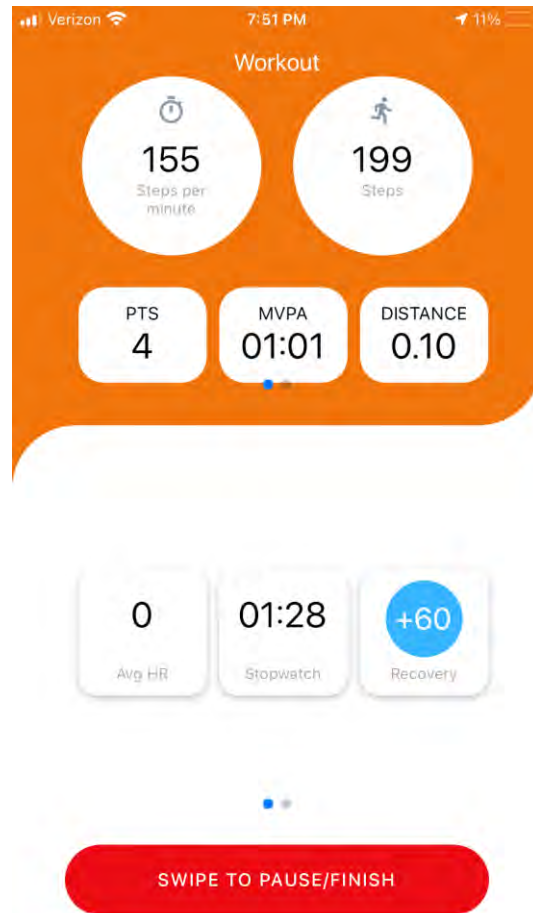


Time In Zone Page:

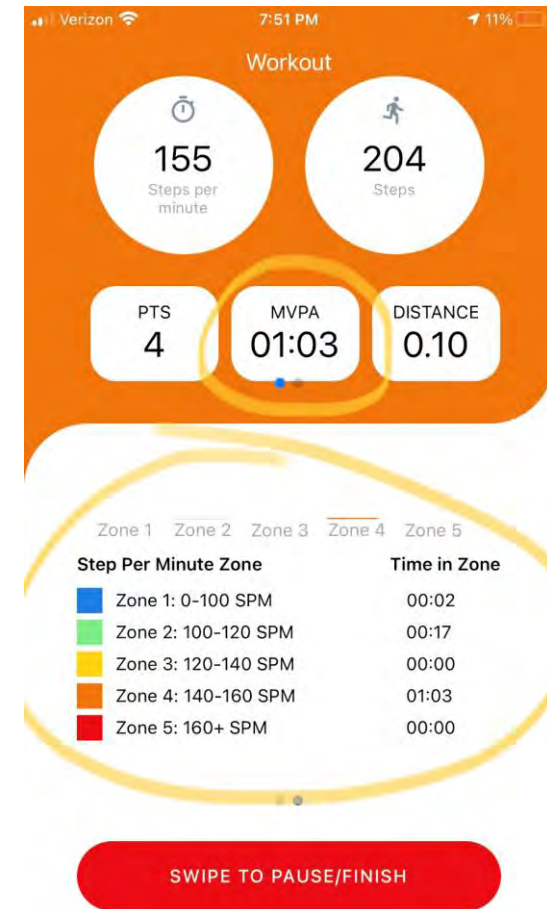


Steps Workout (No Sensor Needed)-HOME App:

Main Page:



Time In Zone Page:



Steps Workout (No Sensor Needed)-HOME App:

1. Steps per Minute Display

- This is your current approximate step rate. The background will change colors based on your step rate (per minute) you are currently working out at.

2. Total Step Count Display

3. Points (refreshes every minute based on step rate)

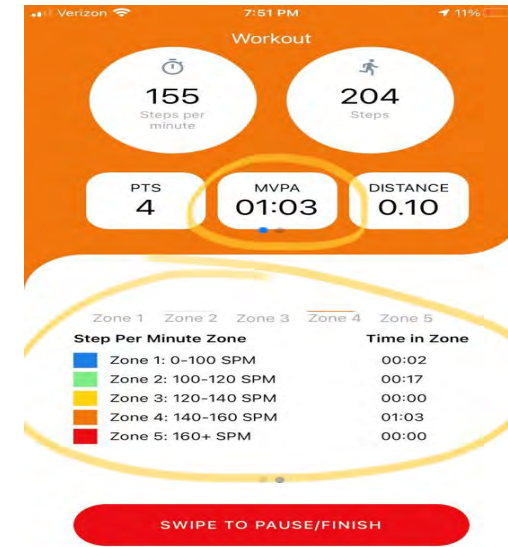
- Zone 1: Blue Zone-1 point/minute; 100 SPM or Below
- Zone 2: Green Zone-2 points/minute; 100-120 SPM
- Zone 3: Yellow Zone-3 points/minute; 120-140 SPM
- Zone 4: Orange Zone-4 points/minute; 140-160 SPM
- Zone 5: Red Zone-5 points/minute; 160 SPM or Above

4. Moderate to Vigorous Physical Activity (MVPA) Timer

- You will get MVPA time when you are working out in the yellow, orange, and/or red zones (based on step rate). This is approximately 120 SPM or higher.

5. Distance (approximate)

6. Stopwatch (duration of the entire workout)



Web Portal:

- The Heart Tech Plus web portal meets all of the strict requirements our customers demand and school districts require in securing online personal data on the cloud.
- All data is sent and received using strict encryption protocol for the security of the clients.
- The web portal allows secure online access by administrators or teachers.
- The web portal allows for various reports to be created to show individual and group progress.

Data Sharing:

Email and/or Print Reports:

- At conclusion of class session, each student (and parent) has the option to receive a report emailed to them.
- Teachers and administrators can run student or class reports based on any date range.
- Batch printing and emailing is available.

Emailed Report(s):

At the end of each class or workout, you and a parent can receive an email showing your data for the whole class or workout.

Your Workout Summary

Class	Period 1 S2 19-20
Instructor	Brian Hull
Duration	35 min.
Points	22
MVPA Minutes	3 min.
MVPA Percent	9%
Avg. Heart Rate	87 bpm
Max Heart Rate	165 bpm
Avg. Step Rate	30 steps/min

Web Portal:

WEB PORTAL REPORTING FEATURES:

- Max heart rate
- Average heart rate
- Time in, above, below target zone
- Time in zone color coded bar chart
- Calories burned
- Percentage of max heart rate
- MVPA
- Recovery time
- Automatic email report sent to student/client
- Batch email and printing
- Class session report
- Customizable class and individual date range reporting
- Total steps
- Steps per minute

Individual or Group Reports in Web Portal:

When students sign into the web portal using their username and password (given by teacher), they will have the ability to view ANY individual workout or be able to create their own date range report. They can see total number of workouts, average points, total points, percent of time spent in MVPA, MVPA minutes, time spent in each zone, calories burned, total steps, steps per minute zones, and total distance traveled.

Class Report for Period 5 Test Class Brian Hull 2018-09-16 to 2018-09-30

Overview

Sessions: 8	Average points: 558	Percent spent in MVPA: 55%
Average time spent in MVPA: 129 Min.	Avg Heart Rate: 130 bpm	Avg Max Heart Rate: 179 bpm
Avg Calories: 3632 Calories	Avg Step Total: 0 steps	Avg step rate: 0 steps/min
Avg distance: 0 feet		

Participants

ID	Name	Sessions	Duration	Avg. HR	Max HR	Calories	Points	Avg. Steps	Total Steps	Distance	% MVPA	MVPA
19		7	04:41:19	138 bpm	200 bpm	3939 Cal	580	0 steps/min	0 steps	0 ft	54%	127 Min
3		11	07:22:03	118 bpm	175 bpm	4764 Cal	692	0 steps/min	0 steps	0 ft	32%	117 Min
12		6	04:01:55	124 bpm	175 bpm	2608 Cal	412	0 steps/min	0 steps	0 ft	39%	80 Min
2		6	04:01:55	135 bpm	184 bpm	3309 Cal	572	0 steps/min	0 steps	0 ft	69%	145 Min
6		7	04:41:19	133 bpm	185 bpm	3543 Cal	535	0 steps/min	0 steps	0 ft	60%	125 Min

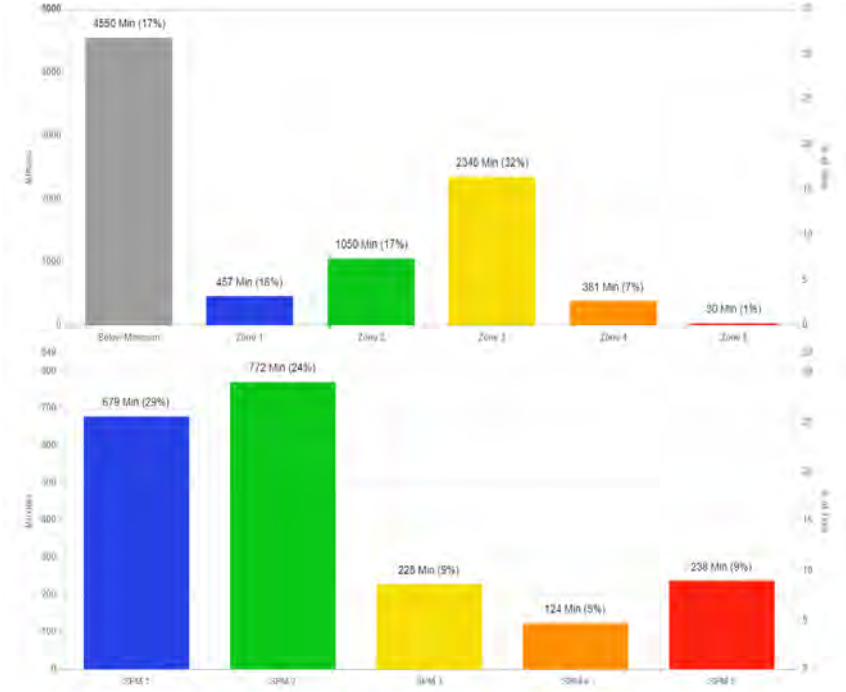
Class Report Email Print Download 11/1/2020 12/9/2020

Class: **Test Class #1**
Instructor: **Richard Butterworth Brad Hull**

Overview (Per Class Session)

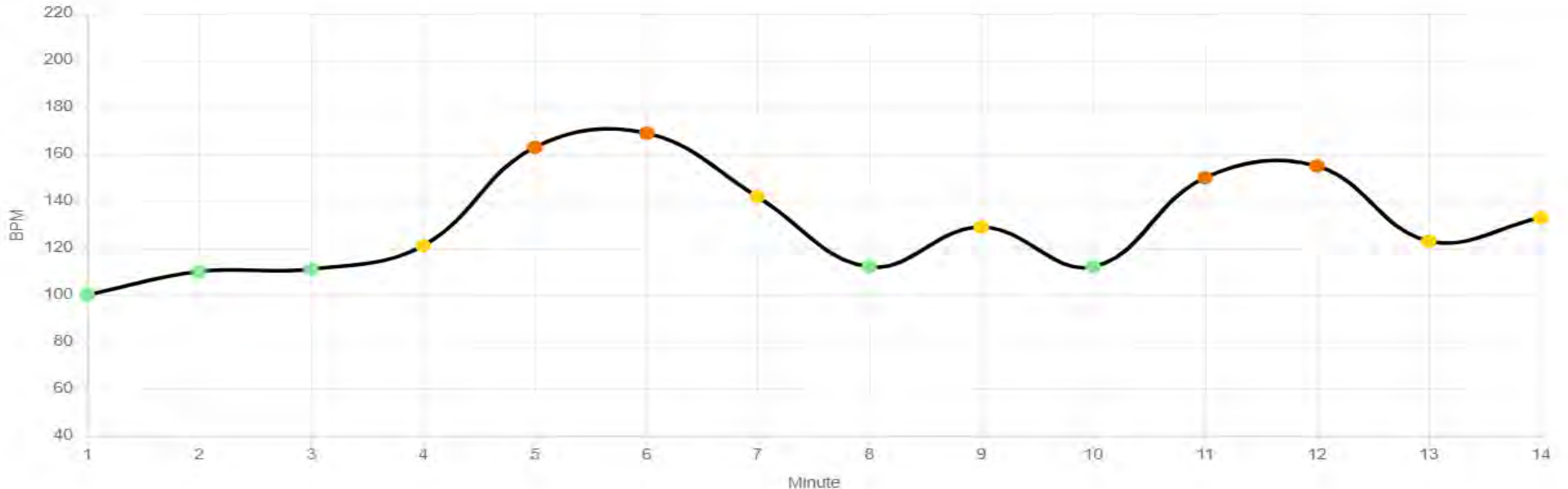
Sessions: 391 <small>237 Steps 154 HR & MVPA</small>	Average points: 40	Percent spent in MVPA: 30%
Average time spent in MVPA: 8.54 Min.	Avg Heart Rate: 95 bpm	Avg Max Heart Rate: 120 bpm
Avg Calories: 201 Calories	Avg Step Total: 946 steps	Avg step rate: 60 steps/min
Avg max step rate: 157 steps/min	Avg distance: 0.65 miles	

Goals



Heart Rate Graphs in Web Portal:

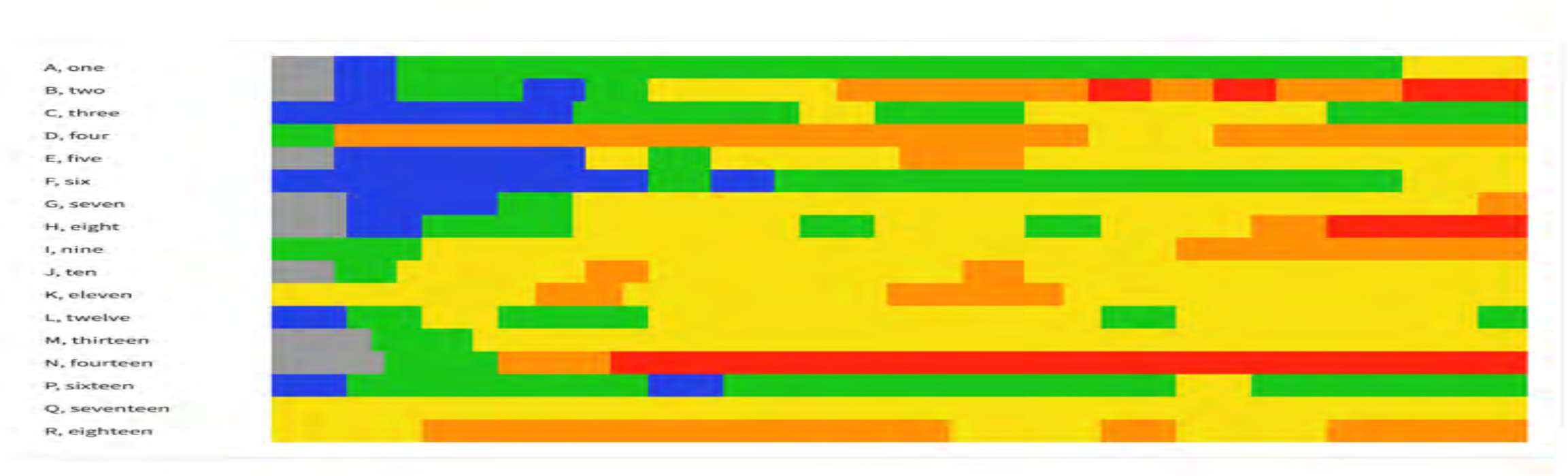
You can see a heart rate line graph showing a user's different heart rates (and zones) they were in during the entire workout.



Class Overall Zone Reports in Web Portal:

Class Overall Zone Report:

You can see a “snapshot” of each user’s heart rate zones and/or steps per minute zones throughout the entire workout.



How Does Heart Tech Plus Align With Fitness Testing?

- Heart Tech Plus is an excellent tool to track heart rate data during cardiovascular fitness tests including the mile run and PACER test.
- If no heart rate sensor is available, Heart Tech Plus offers a Steps only workout (having the device being used as an accelerometer which then converts this data into MVPA time) with the HTP HOME app. This type of workout can also be used during all fitness tests.
- After cardiovascular tests, teachers (and students) can see what their maximum heart rate was during that class or any other class within a specific date range.
- Reports can help teachers set maximum heart rates for students so they can individualize and differentiate for all students based on their current fitness levels.
- For muscular fitness tests, such as curl-ups and push-ups, heart rate monitors can still be worn to help students understand the difference of heart rate zones when participating in these types of activities versus cardiovascular activities.
- The Heart Tech Plus Group app and HOME app tracks moderate to vigorous physical activity (MVPA). Essentially, the more MVPA minutes students engage in during workouts, the more likely they will improve on their physical fitness tests. Students can easily track how many MVPA minutes they are achieving in their workout in the Heart Tech Plus Group app and HOME app.
- Heart Tech Plus offers a Recovery button in both the Group app and HOME app. When this button is pressed, a user's recovery heart rate is calculated based on one minute. This helps students understand that the higher recovery heart rate they have, the better shape they are in. Since this is done after a workout, this is an excellent time for students to perform cool down stretches that could include the sit and reach stretch so they can improve on the sit and reach test. This also helps students understand the correlation between recovery heart rate and cool down.

Google Forms for Students to Provide Information & MVPA Reflections:

To help students take ownership of their data and learning, you can have students fill out their personal information in a Google Form so they can get more accurate results using the system including gender, height, weight, resting heart rate, maximum heart rate, etc. This is also a great way to teach fitness concepts so students understand that not everyone is the same!

This system is a fantastic opportunity for students learn goal setting and self reflection skills!

[Weekly Reflection Example](#)

How Does Heart Tech Plus Relate to OPEN Curriculum?

This curriculum is wonderful with the use of the Heart Tech Plus system! This curriculum offers many activities that are designed to elevate students' heart rates and intensity levels. With the implementation of the Heart Tech Plus system, students can learn phenomenal self-monitoring skills in terms of managing and increasing/decreasing intensity during a workout. This allows for excellent goal setting and reflection opportunities! **Best yet, this curriculum brings you lots of “disguised fitness” opportunities!**

OPEN PHYSED: CREATIVE MODE FITNESS CURRICULUM

Heart Tech Plus Action Plan & Roll Out Plan:

Phase 1: Order equipment (Sensr 4.0's, charging/storage case, HUB, web portal license)

Phase 2: Once products arrives, organize accordingly

- Unbox all Sensr 4.0's, put Sensr 4.0's in charging/storage case, organize straps by size (preferably one bin for small straps and one bin for large straps, number sensors & charging case (preferably with stickers)

Phase 3: Create & upload sensor set to web portal

Phase 4: Create classes in web portal

Phase 5: Fill out & upload user template to web portal

- Students can fill out a Google Form and provide some of their information to make it easier on the teacher

Phase 6: Download FIAH Group App (teacher)

Phase 7: Download HTP HOME app (students)

Phase 8: Introducing Heart Rate Training to Students

- Day 1: Students learn what sensor number they are, what their nickname is (on the wall), how to turn the sensor on, how to put the sensor on, how to clean and put away the sensor
- Day 2: Introduction to the projection (group app only) & tiles and what they mean (heart rate, MVPA, calories, points, percent of heart rate max)
 - Students engage in a variety of activities so they can see how their heart rate zone colors change depending on the intensity of their workout
 - *The tiles are almost identical in the Heart Rate & Moderate to Vigorous Physical Activity (MVPA) workout in the HTP HOME App*
- Day 3: Students learn key points & terms (resting heart rate, MVPA, recovery heart rate, heart rate zones & the benefits of each heart rate zone)
- Days 4-8: Teachers determine initial maximum heart rates for students
 - Have students perform in various vigorous activities that may include the PACER test and fitness games. After a week or so, teachers can generate a date range report in the web portal and see what each student's peak heart rate was (within that date range) and set that heart rate as the student's initial maximum heart rate.

Phase 9: Students wear heart rate sensors each class (or at the teacher's discretion) and learns the importance of physical activity monitoring. Students begin to set goals and reflect on their physical activity performance based on the data they are receiving from the heart rate sensors.
