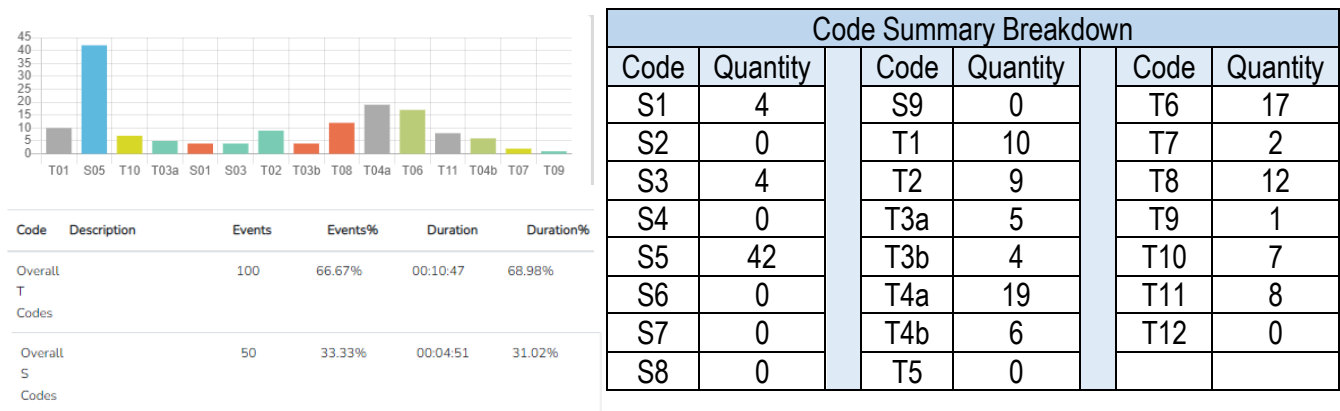# Training Module 9 Extended Practice Key
T, S, and M Codes with Wait Time – Advanced User/Regular Method

Note: The following data and graphs provide the user with an objective analysis for self-reflection, feedback, and coaching. Your data may not exactly match the following, which an expert user generated, but it should generally be similar. For this specific training, it is recommended to compare the following data analyses in the key with your data analyses:

- Code Summary
- Student Engagement Summary
- Teacher Action Plus
- Interaction Patterns
- Wait Time Summary
- Running Record (RR)

Code Summary

Code	Description	Events	Events%	Duration	Duration%
Overall T Codes		100	66.67%	00:10:47	68.98%
Overall S Codes		50	33.33%	00:04:51	31.02%

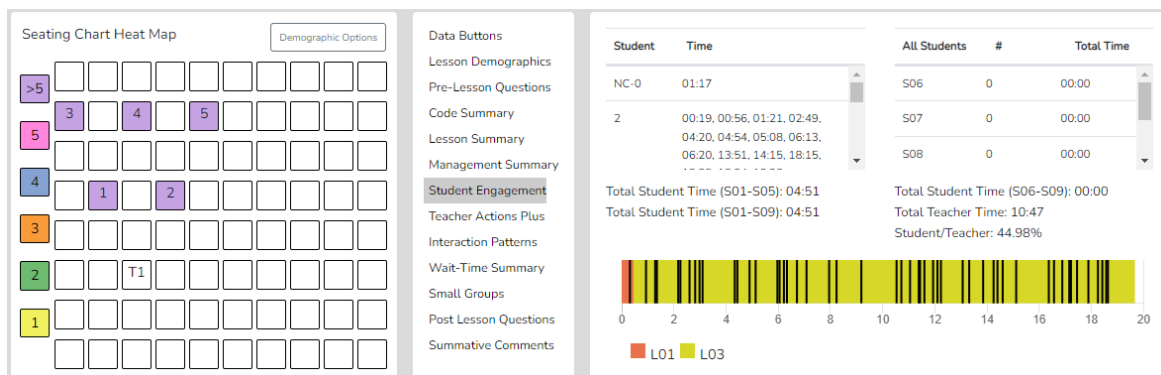| Code Summary Breakdown					
Code	Quantity	Code	Quantity	Code	Quantity
S1	4	S9	0	T6	17
S2	0	T1	10	T7	2
S3	4	T2	9	T8	12
S4	0	T3a	5	T9	1
S5	42	T3b	4	T10	7
S6	0	T4a	19	T11	8
S7	0	T4b	6	T12	0
S8	0	T5	0		

Code Summary Notes/Teacher Feedback:

In terms of student engagement, the S code collected in the highest quantity was S5, with 42 students answering questions during this lesson. However, the lack of S2 and S4 data indicate students were not interacting with each other. In addition, the overall time accrued for T codes was 68.98% vs. S codes 31.02%. In general, a higher S code percentage is indicative of a more student-centered lesson.

In terms of teacher actions, the teacher asked twice as many higher-level thinking questions than lower-level questions (a total of 25 T4 questions were asked compared to 8 T3 questions). And teacher responses to student actions tended to be positive, with the majority of teacher responses including T6 (acknowledge), T8 (repeat), and T11 (asking students to clarify).
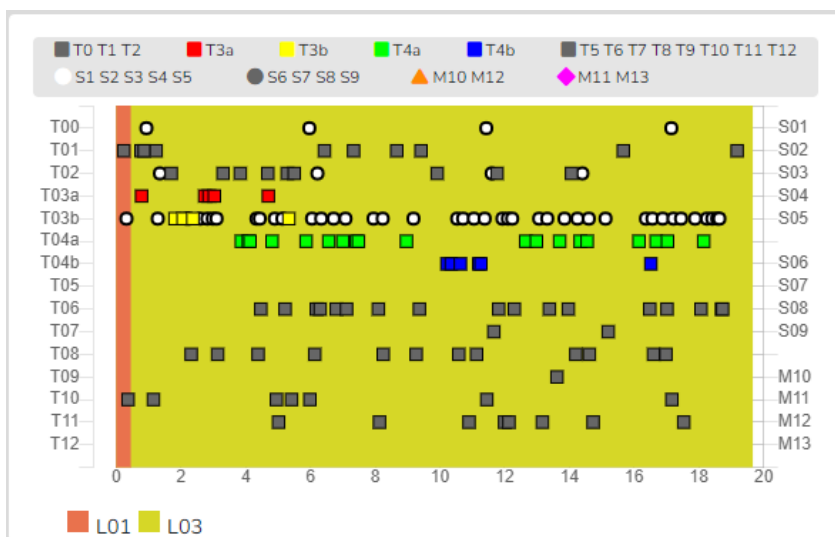
Student Engagement Summary

Student Engagement Notes/Teacher Feedback: *The Seating Chart Heat Map* shows that all students had more than 5 contributions to the lesson (indicated by each student number being highlighted in purple). Individual student engagement data under the *Student/Time* column shows that students #2 and #5 contributed the most. The timeline shows consistent student contributions throughout the lesson (as indicated by the evenest distribution of black lines on the timeline). However, when looking at the whole group student engagement, there was no S6-S9 data collected.
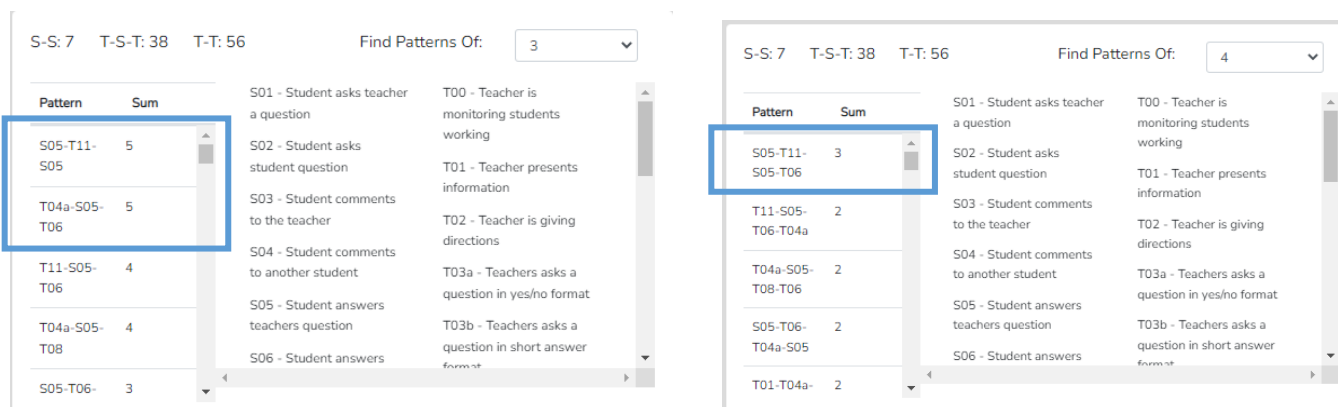
Teacher Action Plus Summary

Teacher Action Plus Notes/Teacher Feedback: When looking at the *Teacher Action Plus* data screen, note that the X axis shows the timeline of the lesson. The S codes are listed on the right-hand vertical side of the graph, and the T codes are listed on the left-hand vertical side of the graph.

- An observer viewing the data for this lesson may note the consistent student engagement throughout the lesson, which matches the instructor's goals.
- For this lesson observation, the T5-T12 data shows that T6, T8, and T11 were often noted, along with the higher-level questions (T4a-T4b), which also indicates teacher actions consistent with the goals of an inquiry lesson.
- There were no misbehaviors or teacher reactions to misbehaviors noted during this lesson.

Interactions Patterns

The predominant pattern of 3 is S5-T11-S5 or T4a-S5-T6.   The predominate pattern of 4 is S5-T11-S5-T6

Interaction Pattern Notes/Teacher Feedback: The predominant teacher-student interaction patterns include T4a, S5, T6, and T11, which are consistent with determining what students think or know without leading, cueing, or judging their responses. The T-T number (56) might be explained by the teacher giving directions to set up the scenario, followed by asking a question. The S-S (7) is not necessarily an indication of students interacting with each other. In this case, it is not, which can be concluded by the lack of S2 and S4 data shown in the *Code Summary* or within *Teacher Action Plus*.

Wait Time Summary

The *Wait Time Summary* analysis provides a matrix of data related to the use of wait times one through four.

Wait-Time Type	Total Events	Total Time	Average
Wait-Time 1 (T-S)	23	00:44	00:01
Wait-Time 2 (S-T)	26	00:47	00:01
Wait-Time 3 (T-T)	6	00:17	00:02
Wait-Time 4 (S-S)	3	00:03	00:01

How to Analyze Wait-Time Averages: When examining the *Wait Time Summary* data table, first look at the column with the *Total Events* and determine if there was enough data to generalize regarding average wait time. For example, in this case, both WT1 and WT2 have enough events to warrant a valid average WT. For WT3, there is probably enough data, but for WT4, with only three instances of data, there is probably not enough data to generalize to someone displaying 1-second average use of WT4.

Wait Time Notes/Teacher Feedback: The teacher being observed for this lesson displayed wait times lower than the average 3.5 seconds needed for significant positive effects. Wait times 2 and 3 are directly under the teacher's control. Therefore, they must condition themselves to wait longer before engaging in another teacher action.

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However, wait times 1 and 4 are events that occur when student actions break the silence. Therefore, the teacher must teach students how to give each other more time to think. For example, rather than letting students call out answers, the teacher may want to say to the students (and teach this behavior by reinforcing it multiple times), "Now when I ask a question, rather than call out a response, I want you to think about an answer, and count to 5 seconds in your head before raising your hand. Then I will call on someone." Or the teacher might say, "When I ask a question, I want to give everybody a chance to think. So rather than raise your hand when you have an answer, I am going to ask you to keep your hands down. Then, when I say "hands," raise your hand if you have a response." Proceeding in this manner will ensure that all students get 3-5 seconds of thinking time.

Running Record

How to Use the Running Record to Analyze the Range of Wait-Time Data: The next important indicator of the teacher's use of wait time is the range of data collected for each type of wait time. While this data is not yet a part of the *Wait Time Summary* chart, the SMT user can glean this data from the *Running Record*. The *Running Record* is displayed in the top-right corner of the SMT analysis screen (when all the qualitative toggles are turned off in the *Team Table*). It contains the sequence of data collected during the observation.

Index	Code	Description	Lesson Clock	Event Length	Wait Time
32	T04a	Teachers asks question requiring speculation	00:04:05	00:00:08	
33	T04a	Teachers asks question requiring speculation	00:04:08	00:00:03	00:00:09
34	2 - S05	Student answers teachers question	00:04:20	00:00:02	00:00:01
35	T08	Teacher repeats student	00:04:23	00:00:01	

[Team Table] [Download Data] [Reset]

Wait Time Notes/Teacher Feedback: The maximum amount of WT1 used in this lesson was 12 seconds. In addition, while scrolling through the *Running Record,* one can find other instances of 4 and 7 seconds, which means the teacher uses substantial wait time at various times throughout the lesson. However, when comparing the range in the *Running Record* to the *Wait Time Summary* data (below), an observer can see that the teacher is not consistently using wait time since the average is still only 1 second.

Wait-Time Type	Total Events	Total Time	Average	*Range (from RR)*
Wait-Time 1 (T-S)	29	00:54	00:01	*00:00 – 00:12*
Wait-Time 2 (S-T)	24	00:47	00:01	*00:00 – 00:04*
Wait-Time 3 (T-T)	4	00:13	00:03	*00:00 – 00:07*
Wait-Time 4 (S-S)	3	00:04	00:01	*00:00 - 00:02*

Looking at the *Running Record* again, the maximum amount of WT 2 used in this lesson was 4 seconds and for WT 3, it was 7 seconds. Again, this shows an ability to use wait time, but compared to the Wait Time Summary, the use is inconsistent since the average is 1 second. In short, this means that the teacher being observed might work on becoming more consistent with using wait time.

Note: Clicking on any event in the *Running Record* will cause the SMT app to play that section of the video. This is a powerful feature as the teacher or coach now can instantly view examples of when significant wait time was used in the lesson or instances where wait time was zero.

Wait Time Data Collection – Potential vs. Collectable: The wait time averages shown are affected by how many times the teacher used enough wait time for the user to have time to click the wait time bar. For example, if the teacher asks a question, then a student responds immediately, and then the teacher reacts immediately, the SMT user does not have enough time to click the WT button and note the end of the pause or thinking time because it was a micro-second in length. However, in the analysis phase, the user can manually calculate how many opportunities there were to use wait time compared to how many times the user had enough time to click the wait time bar.

To determine this ratio, add the "events" for each type of wait time (shown in the *Wait Time Summary* matrix) and divide this by the sum of the number of T3a-T12 events plus the number of S1-S5 events (from *Code Summary*).

For example, in this observation, there was a total of 58 WT data points and 117 T3a-T12 and S1-S5 events. So roughly half (58/117) of potential data points were collected. For novice SMT users, this might mean that their speed of data collection does not match the pace of instruction or that WT was too small to collect. For a more experienced SMT user, this probably means that the amount of WT used in half the instances was so small that data collection was impossible.

> **SMT Black Belt Status:** Note that following successful completion of Training Level 9 the user has the skills to collect extensive high-resolution data during a teacher observation and provide feedback and coaching based on such data and evidence. SMT wants to know and list users who have developed their observations skills to this level – please let us know so we can recognize you on our SMT website.