**Characteristics of Highly Effective Science Teaching and Learning**

 

**Learning Climate:**  a safe environment supported by the teacher in which high, clear expectations and positive relationships are fostered; active learning is promoted

4**- Teacher creates learning environments where students are active participants as individuals and as members of collaborative groups.**
9 **- Teacher motivates students and nurtures their desire to learn in a safe, healthy and supportive environment which develops compassion and mutual respect.**

14**- Teacher cultivates cross cultural understandings and the value of diversity.**
15**- Teacher encourages students to accept responsibility for their own learning and accommodates the diverse learning needs of all students.**

20**- Teacher displays effective and efficient classroom management that includes classroom routines that promote comfort, order and appropriate student behaviors.**

22**- Teacher provides students equitable access to technology, space, tools and time.**

29**- Teacher effectively allocates time for students to engage in hands-on experiences, discuss and process content and make meaningful connections.**

36**- Teacher designs lessons that allow students to participate in empowering activities in which they understand that learning is a process and mistakes are a natural part of learning.**

39**- Teacher creates an environment where student work is valued, appreciated and used as a learning tool.**



 **Classroom Assessment and Reflection:**  the teacher and student collaboratively gather information and reflect on learning through a systematic process that informs instruction

2**- Teacher uses multiple methods to systematically gather data about student understanding & ability.**

7**- Teacher uses student work/data, observations of instruction, assignments and interactions with colleagues to reflect on and improve teaching practice.**

12**- Teacher revises instructional strategies based upon student achievement data.**

26**- Teacher uncovers students’ prior understanding of the concepts to be addressed and addresses students’ misconceptions/incomplete conceptions.**

28**- Teacher co-develops scoring guides/rubrics with students and provides adequate modeling to make clear the expectations for quality performance.**

31**- Teacher guides students to apply rubrics to assess performance & identify improvement strategies.**

32**- Teacher provides regular and timely feedback to students and parents that moves learners forward.**

35**- Teacher allows students to use feedback to improve their work before a grade is assigned.**

38**- Teacher facilitates students in self- and peer-assessment.**

40**- Teacher reflects on instruction and makes adjustments as student learning occurs.**



**Instructional Rigor and Student Engagement:** a teacher supports and encourages a student’s commitment to initiate and complete complex, inquiry-based learning requiring creative and critical thinking with attention to problem solving

5**- Teacher instructs the complex processes, concepts and principles contained in state and national standards using differentiated strategies that make instruction accessible to all students.**

13**- Teacher scaffolds instruction to help students reason and develop problem-solving strategies.**

17**- Teacher orchestrates effective classroom discussions, questioning, and learning tasks that promote higher-order thinking skills.**

21**- Teacher provides meaningful learning opportunities for students.**

23**- Teacher challenges students to think deeply about problems and encourages/models a variety of approaches to a solution.**

24**- Teacher integrates a variety of learning resources with classroom instruction to increase learning options.**

30**- Teacher structures and facilitates ongoing formal and informal discussions based on a shared understanding of rules of discourse.**

34**- Teacher integrates the application of inquiry skills into learning experiences.**

37**- Teacher clarifies and shares with students learning intentions/targets and criteria for success.**



**Instructional Relevance:** a teacher’s ability to facilitate learning experiences that are meaningful to students and prepare them for their futures.

**Teacher Characteristics:**

1**- Teacher designs learning opportunities that allow students to participate in empowering activities in which they understand that learning is a process and mistakes are a natural part of the learning.**

3**- Teacher links concepts and key ideas to students’ prior experiences and understandings, uses multiple representations, examples and explanations.**

6**- Teacher incorporates student experiences, interests and real-life situations in instruction.**

11**- Teacher selects and utilizes a variety of technology that support student learning.**

18**- Teacher effectively incorporates 21st Century Learning Skills that prepare students to meet future challenges.**

25**- Teacher works with other teachers to make connections between and among disciplines.**

33**- Teacher makes lesson connections to community, society, and current events.**



**Knowledge of Content:**  a teacher’s understanding and application of the current theories, principles, concepts and skills of a discipline.

**Teacher Characteristics:**

8**- Teacher demonstrates an understanding and in-depth knowledge of content and maintains an ability to convey this content to students.**

10**- Teacher maintains on-going knowledge and awareness of current content developments.**

16**- Teacher designs and implements standards-based courses/lessons/units using state and national standards.**19**- Teacher uses and promotes the understanding of appropriate content vocabulary.**

27**- Teacher provides essential supports for students who are struggling with the content.**

41**- Teacher accesses a rich repertoire of instructional practices, strategies, resources and applies them appropriately.**