|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  | Explain mathematical |  |  | Mathematical |  |  | Building student |  |  |
|  |  | Teacher role |  |  | Questioning |  |  |  |  |  |  | responsibility within the |  |  |
|  |  |  |  |  |  | thinking |  |  | representations |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  | community |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Level 0 | Teacher is at the front | | | Teacher is only | | |  | Teacher questions focus | | Representations are | | |  | Culture supports | |  |
|  | of the room and | | | questioner. Questions | | |  | on correctness. | | missing, or teacher | | |  | students keeping ideas | |  |
|  | dominates | | | serve to keep students | | |  | Students provide short | | shows them to | | |  | to themselves or just | |  |
|  | conversation. | | | listening to teacher. | | |  | answer-focused | | students. | | |  | providing answers when | |  |
|  |  |  |  | Students give short | | |  | responses. Teacher may | |  |  |  |  | asked. | |  |
|  |  |  |  | answers and respond to | | |  | give answers. | |  |  |  |  |  |  |  |
|  |  |  |  | teacher only. | | |  |  |  |  |  |  |  |  |  |  |
|  |  | | |  | | |  |  | |  | | |  |  | |  |
| Level 1 | Teacher encourages the | | | Teacher questions begin | | |  | Teacher probes student | | Students learn to create | | |  | Students believe that | |  |
|  | sharing of math ideas | | | to focus on student | | |  | thinking somewhat. One | | math drawings to depict | | |  | their ideas are | |  |
|  | and directs speaker to | | | thinking and less on | | |  | or two strategies may | | their mathematical | | |  | acceptable by the | |  |
|  | talk to the class, not to | | | answers. Only teacher | | |  | be elicited. Teacher | | thinking. | | |  | classroom community. | |  |
|  | the teacher only. | | | ask questions. | | |  | may fill in an | |  |  |  |  | They begin to listen to | |  |
|  |  |  |  |  |  |  |  | explanation. Students | |  |  |  |  | one another | |  |
|  |  |  |  |  |  |  |  | provide brief | |  |  |  |  | supportively and restate | |  |
|  |  |  |  |  |  |  |  | descriptions of their | |  |  |  |  | in their own words what | |  |
|  |  |  |  |  |  |  |  | thinking in response to | |  |  |  |  | another student has | |  |
|  |  |  |  |  |  |  |  | teacher probing. | |  |  |  |  | said. | |  |
|  |  | | |  | | |  |  | |  | | |  |  | |  |
| Level 2 | Teacher facilitates | | | Teacher asks probing | | |  | Teacher probes more | | Students label their | | |  | Students believe that | |  |
|  | conversation between | | | questions and facilitates | | |  | deeply to learn about | | math drawings so that | | |  | they are math learners | |  |
|  | students, and | | | some student-to- | | |  | student thinking. | | others are able to follow | | |  | and that their ideas and | |  |
|  | encourages students to | | | student talk. Students | | |  | Teacher elicits multiple | | their mathematical | | |  | the ideas of their | |  |
|  | ask questions of one | | | ask questions of one | | |  | strategies. Students | | thinking. | | |  | classmates are | |  |
|  | another. | | | another with prompting | | |  | respond to teacher | |  |  |  |  | important. They listen | |  |
|  |  |  |  | from teacher. | | |  | probing and volunteer | |  |  |  |  | actively so that they | |  |
|  |  |  |  |  |  |  |  | their thinking. Students | |  |  |  |  | can contribute | |  |
|  |  |  |  |  |  |  |  | begin to defend their | |  |  |  |  | significantly. | |  |
|  |  |  |  |  |  |  |  | answers. | |  |  |  |  |  |  |  |
|  |  | | |  | | |  |  | |  | | |  |  | |  |
| Level 3 | Students carry the | | | Student-to-student talk | | |  | Teacher follows student | | Students follow and | | |  | Students believe that | |  |
|  | conversation | | | is student initiated. | | |  | explanations closely. | | help shape the | | |  | they are math leaders | |  |
|  | themselves. Teacher | | | Students ask questions | | |  | Teacher asks students | | descriptions of others’ | | |  | and can help shape the | |  |
|  | only guides from the | | | and listen to responses. | | |  | to contrast strategies. | | math thinking through | | |  | thinking of others. They | |  |
|  | periphery of the | | | Many questions ask | | |  | Students defend and | | math drawings and may | | |  | help shape others’ math | |  |
|  | conversation. Teacher | | | “why” and call for | | |  | justify their answers | | suggest edits in others’ | | |  | thinking in supportive, | |  |
|  | waits for students to | | | justification. Teacher | | |  | with little prompting | | math drawings. | | |  | collegial ways and | |  |
|  | clarify thinking of | | | questions may still | | |  | from the teacher. | |  |  |  |  | accept the same | |  |
|  | others. | | | guide discourse. | | |  |  |  |  |  |  |  | support from others. | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Hufferd-Ackles, Fuson, Sherin (2004)

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