

Energy from Coal

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2 class periods – 120 minutes allowed if needed.

Opening Question: (Students respond individually – 3 minutes) Does all coal produce the same amount of energy when burned? Why?

Think Pair Share with a neighbor – 1 minute

Class discussion, teacher led – 5 minutes or until ideas are exhausted.

Form cooperative groups to look at three coal samples and write initial CER on opening question.

- Groups are given chart paper, markers and samples of bituminous, anthracite and lignite coal.

- Groups will have 10 minutes to develop their first CER on opening question based only on visual and tactile observations.

Groups post their CER's around room and gallery walk ensues. Students are to put post it notes with noticings and wonderings about other groups CER's on their posters. – 10 minutes

Class discussion concerning findings – 2-3 minutes.

Videos are shown from YouTube titled "Formation of coal" and "Different types of Coal" – 5 minutes

Teacher now demonstrates the combustibility of each type of coal by lighting each sample and having the class observe differences in emission color and quantity. Prior to lighting each piece students are to hypothesize what will be observed– 2-5 minutes

Groups are then given an informational text piece from the textbook "EarthComm" (Pages R-31- R33) on the formation of the three different types of coal. Students are asked to popcorn read in three sentence fragments from right to left around the group. -10 minutes

Groups will then create a brand new CER or alter original on opening question with at least 3 pieces of evidence required to back up their claim.- Remainder of hour and continued into next period if needed.

Final gallery walk with noticings and wonderings posted as well as a wrap up class discussion will take place after final versions are complete.