

Title: Aggregate Terms and Definitions



NOTES:

- the definitions are not intended to be technical but to help the students acquire a working knowledge of aggregate terms and practices.
- Do only as many of these activities as you have time for. The most important thing is the memorizing practice not how many aggregate terms the students actually acquire

Materials needed: aggregate word list/aggregate word blank/
matching quiz/agg cards

Activity 10: Aggregate definitions ... 1 hour or 2 hours

- students match the definitions with the term: alone/pairs/groups.
- make it a contest ... timed/prizes/most correct
- students in rows come up one at a time to match one term with the definition - have word card in hand or cards are sitting on a desk at the front of the row of students to be seen when student comes to the front for their turn
- allow time to review terms and quiz a partner before doing a contest
- run off cards and definitions onto light tag paper so students can cut them out
- If you run the definitions on the back of terms, they can be flash cards

Activity 11: Aggregate Story Words - fill in the blank ... 1 hour

- using definition sheet, students fill in the blanks with the proper term to tell the story of aggregates
- homework - permits parents to see the depth of detail and educates them about aggregates
- alone/partner

Activity 12: Aggregate Matching Words Quiz ... 10 minutes

- use as a test of knowledge
- put the letter from the left of the term into the empty box on the right of the definition

Title: Aggregate Word Definitions List Activity 10

Materials needed: aggregate word definition list

AGGREGATE: sand, gravel and crushed rock

AGLIME: crushed limestone - used for growing things

ARCHEOLOGY: looking for the remains of people long ago ie First Nations people

ASPHALT: Is produced when gravel is mixed with hot petroleum tar. Pavement for roads

BARGE: A flat bottom boat used to haul aggregate down a river or across a lake or ocean.

BIRDSEYE or PEAGRAVEL: Small washed stones used for playground safety.

CEMENT: Mixed with gravel and water to form concrete.

CONCRETE: Made from gravel, cement and water.

CONVEYOR: Moves aggregate along a moving belt from one place to another usually within a pit or across/under a road or stream

CRUSHED ROCK: Large rocks broken into smaller pieces. Has sharp edges

DRAINAGE: How well water moves away from a building. Gravel is used to improve drainage.

DUST: Produced from crushing rocks and trucks driving on it when it is dry.

ENGINESAND: Dropped on the train tracks when slippery to give the engine wheels traction.

ENVIRONMENT: The natural area surrounding a gravel pit.

EXTRACTION: To remove gravel from the ground usually with loaders or big shovels

GRAVEL: Small rocks used in construction, roads and drainage.

GYPSUM: A crushed rock material used to make wallboard and medicines.

IMPACT: How something is affected ie the streams near a gravel pit.

JAWCRUSHER: A large machine which crushes stones into smaller stones.

LIMESTONE: Crushed rock which is an important part of concrete and used to clean air or water.

MINE: What we call a large gravel pit operation.

NOISE: Trucks/crushing equipment can bother neighbours if close to them.

PERMIT: When the Ministry of Energy and Mines approves a mine, they issue a permit or license to start up.

PIT: The large hole where gravel is taken out.

POLLUTION: Produced by gravel trucks especially when gravel must be hauled from farther away.

PROFIT: The price paid for gravel minus the cost of producing it.

RECLAMATION: To turn an old gravel pit into something useful again like a park or lake.

RESERVES: Gravel deposits that are known but not dug up yet.

ROADBASE: Gravel used to build up the layers of a road.

SAFETY: To protect yourself by wearing a hard hat/reflective vest in a gravel pit.

SAND: Used in concrete, lawns and to make glass.

SCREEN: Big sheets of mesh which separate large from smaller rocks.

SEAM: When gravel or sand occurs in a long band surrounded by other material.

TAXES: The money the city/government collects from you to pay for services. Taxes are much larger if gravel must be hauled from farther away.

TRUCKS: Used to haul gravel when barges and trains are not available.

WASHED: What we call rocks when they are cleaned with water.

AQUIFER: Underground water which might be damaged by a poorly planned gravel pit.

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|-------------------------------|---|
| AGGREGATE | sand, gravel and crushed rock |
| AGLIME | crushed limestone - used for growing things |
| ARCHEOLOGY | looking for the remains of people long ago ie First Nations people |
| LIMESTONE | Crushed rock which is an important part of concrete and used to clean air or water. |
| MINE | What we call a large gravel pit operation. |
| NOISE | Trucks/crushing equipment can bother neighbors if close to them. |
| ASPHALT: | Is produced when gravel is mixed with hot petroleum tar. Pavement for roads |
| BARGE: | A flat bottom boat used to haul aggregate on water. |
| BIRDSEYE or PEAGRAVEL: | Small washed stones used for playground safety. |
| CEMENT: | Mixed with gravel and water to form concrete. |

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| CONCRETE: | Made from gravel, cement and water. |
| CONVEYOR: | Moves aggregate along a moving belt from one place to another usually within a pit or across/under a road or stream |
| CRUSHED ROCK: | Large rocks broken into smaller pieces. Has sharp edges. |
| DRAINAGE: | How well water moves away from a building. Gravel is used to improve drainage. |
| DUST: | Produced from crushing rocks and trucks driving on dirt when it is dry |
| ENGINESAND: | Dropped on the train tracks when slippery to give the engine wheels traction. |
| ENVIRONMENT: | The air, water & soil surrounding a gravel pit. |
| EXTRACTION: | To remove gravel from the ground usually with loaders or big shovels |
| GRAVEL: | Small rocks used in construction, roads and drainage. |
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|-------------------|---|
| GYPSUM: | A crushed rock material used to make wallboard and medicines. |
| IMPACT: | How something is affected ie the streams near a gravel pit. |
| JAWCRUSHER | A large machine which crushes stones into smaller stones |
| LIMESTONE | Crushed rock which is an important part of concrete and used to clean air or water. |
| MINE | What we call a large gravel pit operation. |
| NOISE | Trucks/crushing equipment can bother neighbors if close to them |
| PERMIT | When the Ministry of Energy and Mines approves a mine, they issue a permit or license to start up. |
| PIT: | The large hole where a gravel is taken out. |
| POLLUTION: | Produced by gravel trucks especially when gravel must be hauled from farther away. |

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| PROFIT | The price paid for gravel minus the cost of producing it. |
| RECLAMATION: | To turn an old gravel pit into something useful again like a park or lake. |
| JAWCRUSHER | A large machine which crushes stones into smaller stones |
| RESERVES: | Gravel deposits that are known but not dug up. |
| ROADBASE: | Gravel used to build up the layers of a road. |
| SAFETY: | To protect yourself by wearing a hard hat/reflective vest in a gravel pit. |
| SAND: | Used in concrete, lawns and to make glass. |
| SEAM: | When gravel or sand occurs in a long band surrounded by other material. |
| TAXES: | Money the city/gov't collects from you to pay for services. Taxes are larger if gravel is hauled farther. |

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| TRUCKS: | Used to haul gravel when barges and trains are not available |
| WASHED: | What we call rocks when they are cleaned with water. |
| GROUNDWATER: | Underground water which might be damaged by a poorly planned gravel pit. |

Students will fill in the blanks. Words in bold are the answers and found in the list above.

The story of **aggregates** is about how we find and use sand, gravel and crushed rocks. The gravel operator will first locate **reserves** of aggregate which no one else has taken out of the ground yet. Before he can start a **mine** he must obtain a **permit** from the Ministry of Mines. The Ministry will want the gravel company to do studies to make sure that this will be a good thing:

- **Archaeology** studies are done to be sure there are no First Nations artifacts in the ground
 - the **impact** on the **environment** especially the streams must be minimal
 - a suitable route for the gravel **trucks** must be determined so the neighbours are not bothered by too much **noise** or **dust**
 - If the gravel is next to a river or the ocean it can be hauled by **barge** which is much quieter and does not cause as much **pollution** or traffic congestion as trucks on the highway
 - The **groundwater** must be protected to ensure that wells/streams are safe
- Once permission is given, the large loaders and diggers begin **extraction** by digging into the **seam** where the aggregate occurs in the ground. The aggregate could be dumped into a **jawcrusher** which crushes the large stones into small ones. Other material might be dumped into a **screen** to sort out the rocks by size. The crushed and sorted rocks and sand might be moved by **conveyor** to be dumped into piles of same size stuff. Some of the rocks are even **washed** to make sure they are clean from dust and dirt. Of course, for **safety** reasons the workers wear hardhats and reflective vests.

The piles of aggregates are now taken to be used. **Limestone** is crushed to make **Aglime** which is taken to orchards, greenhouses, farms and golf courses to help plants grow. Crushed **Gypsum** is taken to make wallboard or gyproc for houses. Many truck loads of **roadbase** are taken to build roads. **Gravel** is taken to build houses and improve **drainage** so water runs away from buildings. **Birdseye** is taken to school playgrounds while **Sand** is spread on lawns and golf courses to help the soil breathe. Trains even use **Enginesand** to provide traction on slippery tracks.

Many gravel **Pits** or mines use aggregates onsite. Some have a **Concrete** plant where gravel, water and **Cement** are mixed to be hauled to make sidewalks and building foundations especially. Other places might mix gravel and hot tar to make **Asphalt** used on roads.

When the aggregates are gone, the **reclamation** process begins to turn the pit into something useful like parks, agricultural land or housing.

Gravel pits are also about money. Cities buy gravel with **taxes** so it is cheaper for the citizens to buy gravel from closer to home. Gravel pits will only continue operating if the operator is able to make a **profit** by selling the aggregates for more than it costs him to produce it.

The Aggregate Matching Words

Activity 12

name _____ 30 min



Place the letter from the left column into the right column of the definition which matches the bold word. **Student version has no letters on left side column.**

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| A | GROUNDWATER | To remove gravel from the ground usually with loaders or big shovels | C |
| B | TRUCKS | A flat bottom boat used to haul aggregate down a river or across a lake. | H |
| C | EXTRACTION | The money the city/government collects from you to pay for gravel used by the city | D |
| D | TAXES | Underground water which might be damaged by a poorly planned gravel pit. | A |
| E | JAWCRUSHER | To turn an old gravel pit into something useful again like a park or lake. | I |
| F | PERMIT | Used to haul gravel when barges and trains are not available | B |
| G | ENVIRONMENT | The price paid for gravel minus the cost of producing it. | J |
| H | BARGE | A large machine which crushes stones into smaller stones | E |
| I | RECLAMATION | When the Ministry of Energy and Mines approves a mine, they issue a permit or license to start up. | F |
| J | PROFIT | The land, soil and air surrounding a gravel pit. | G |