

8th Grade



Summer Work Packet

Name: _____

Welcome rising 8th graders! We are very excited for you all to start your 8th grade year here at Northwood! We have created a summer packet that will help you continue to build the skills you need to be successful throughout your 8th grade year and into high school. Please review the instructions below and complete the entire packet before the start of the school year!

-8th Grade Team

Assignments:

Read the short story “Dawn” that is included in this packet and complete the following assignments. Make sure you are using complete sentences, academic language, and your best handwriting. If we cannot read it we cannot grade it!

English:

Complete the “Dawn” reading packet.

Math:

Complete the math questions

Social Studies:

Complete the “Dawn” social studies packet.

Science:

Complete the “Dawn” reading packet.

Due Date August 28

Dawn

Barnsey met Dawn on the night bus to North Bay. His mother put him on at Ottawa, just after supper. His parents owned a store and the Christmas season was frantic, so for the third year in a row, Barnsey was going up to Grandina Barrymore's and his parents would follow Christmas day. He had cousins in North Bay, so it was fine with Barnsey, as long as he didn't have to sit beside someone weird the whole way.

"What if I have to sit beside someone weird the whole way?" he asked his mother in the bus terminal. She cast him a warning look. A let's-not-make-a-scene look. Barnsey figured she was in a hurry to get back to the store.

"You are thirteen, Matthew," she said. There was an edge in her voice that hadn't been there before. "Has anything bad happened to you yet?"

Barnsey was picking out a couple of magazines for the trip: *Guitar World* and *Sports Illustrated*. "I didn't say anything *bad* was going to happen. If anything *bad* happens, I make a racket and the bus driver deals with it. I know all that. I'm just talking about someone weird."

"For instance?" said his mother.

"Someone who smells. Someone really, really fat who spills over onto my seat. Someone who wants to talk about her liver operation."

His mother paid for the magazines and threw in a Kit Kat, too. Barnsey didn't remind her that she'd already bought him a Kit Kat, and let him buy a Coke, chips, and some gum. And this was apart from the healthy stuff she had already packed at home. She was usually pretty strict about junk food.

"I just asked," said Barnsey.

"Come on," said his mother, giving his shoulder a bit of a squeeze. "Or the only *weird* person you're going to be sitting beside is your mother on the way back to the store."

Barnsey didn't bother to ask if that was an option. His parents put a lot of stock in planning. They didn't put much stock in spontaneity.

"What if I end up in Thunder Bay by mistake?"

His mother put her arm around him. He was almost as tall as she was now. "Matthew," she said in her let's-be-rational voice. "That would require quite a mistake on your part. But, if it were to happen, you have a good head on your shoulders *and* your own bank card."

His mother almost looked as if she was going to say something about how they had always encouraged him to be independent, but luckily she noticed it was boarding time.

They were at Bay 6, and his mother suddenly gave him a very uncharacteristic hug. A bear hug. They weren't a hugging kind of a family. She looked him in the eyes.

"Matthew," she said. "It's not so long. Remember that."

"I know," said Barnsey. But he wasn't sure if his mother meant the trip or the time before he'd see her again. He couldn't tell.

They moved through the line toward the driver, who was taking tickets at the door of the bus.

"Don't do the thing with the money," Barnsey whispered to his mother.

"Why not?" she said. Barnsey didn't answer. "It's just good business. And besides, young man, I'll do what I please."

And she did. As Barnsey gave the driver his ticket, Barnsey's mother ripped a twenty-dollar bill in half ceremoniously in front of the driver's face. She gave half the bill to Barnsey, who shoved it quickly in his pocket.

"Here, my good man," said his mother to the bus driver in her store voice. "My son will give you the other half upon arrival in North Bay. Merry Christmas."

The driver thanked her. But he gave Barnsey a secret kind of cockeyed look, as if to say, Does she pull this kind of stunt all the time?

Then Barnsey was on board the bus, and there was Dawn.

There was no other seat. His mother had once told him that if there weren't any seats left, the bus company would have to get a bus just for him. That was the way they did business. So Barnsey shuffled up and down the bus a couple of times even after he'd put his bag up top, looking—hoping—that someone would take the seat beside Dawn so he could triumphantly demand a bus of his own. But there were no other seats and no other passengers.

He suddenly wanted very much to go back out to his mother, even though she would say he was being irrational. But then when he caught a glimpse of her through the window, she looked almost as miserable as he felt. He remembered the bear hug with a shiver. It shook his resolve. Timidly he turned to Dawn.

"Is this seat taken?" he asked.

The girl took off her Walkman earphones and stared at the seat a bit, as if looking for someone. She took a long time.

"Doesn't look like it."

Barnsey sat down and made himself comfortable. He got out his own Walkman and arranged his tapes on his lap and thought about the order in which he was going to eat all the junk he had or whether he'd eat a bit of each thing—the chocolate bars, the chips, the Coke—in some kind of order so they all came out even. At home his mother had packed a loganberry soda and some trail mix. He'd keep those for last. Strictly emergency stuff.

Then the bus driver came on board and they were off.

"There's talk of big snow up the valley a way, so I'm gonna light a nice cozy fire," he said. People chuckled. There was already a cozy kind of nighttime we're-stuck-in-this-together mood on the bus. Nobody was drunk or too loud. And the girl beside Barnsey seemed to be completely engrossed in whatever was coming through her earphones.

It was only the way she looked that he had any problem with. The nine earrings, the nose rings, and the Mohawk in particular—orange along the scalp and purple along the crest as if her skull was a planet and the sun was coming up on the horizon of her head. She was about twenty and dressed all in black, with clunky black Doc Martens. But as long as she was just going to listen to her music, then Barnsey would listen to his and everything would be fine.

And it was for the first hour or so. By then the bus had truly slipped into a comfortable humming silence. It was

about nine, and some people were sleeping. Others were talking softly as if they didn't want to wake a baby in the next room. That's when the mix-up occurred.

There isn't much room in a bus seat. And there wasn't much room on Barnsey's lap. Somehow a couple of his tapes slid off him into the space between him and Dawn, the girl with the horizon on her head, though he didn't know her name yet. The weird thing was, the same thing had happened to her tapes. And the weirdest thing of all was that they both found out at just about the same time.

Barnsey shoved the new Xiphoid Process tape into his machine and punched it on. While he was waiting for the music to start, he dug the cassette out from his backpack and looked again at the hologram cover. The band was standing under lowering skies all around an eerie-looking gravestone. Then if you tipped the cover just right, the guys all seemed to pull back, and there was a hideous ghoul all covered with dirt and worms standing right in the middle of them where the grave marker had been. It was great.

Barnsey pulled a bag of chips from the backpack at his feet, squeezed it so that the pressure in the bag made it pop open, and crunched on a couple of chips as quietly as he could. He was busy enjoying the way the first sour cream and onion chip tastes, and it took him a minute to notice he wasn't hearing anything.

He turned the volume up a bit. Nothing. Then he realized there was something. A tinkling noise and a bit of a whooshing noise, and a bit of what sounded like rain and some dripping and more tinkling.

Barnsey banged his Walkman. He thought the batteries were dying. Then Dawn changed tapes as well and

suddenly yelled, as if she'd just touched a hot frying pan. Some people looked around angrily. The looks on their faces made Barnsey think they had just been waiting for a chance to glare at her. One lady glanced at him, too, in a pitying kind of way, as if to say, Poor young thing. Having to sit beside a banshee like that.

Meanwhile, both of them opened up their Walkmans like Christmas presents. They held their tapes up to the little lights above them to check the titles.

"Rain Forest with Temple Bells?" Barnsey read out loud.

"Scream for Your Supper!" Dawn read out loud.

Barnsey apologized, nervously. Dawn just laughed. They made the switch, but before Barnsey could even say thank you, the girl suddenly took his tape back.

"Tell you what," she said. "You listen to that fer 'alf a mo, and I'll give this a try. 'kay?"

She had a thick accent, British.

"Okay," said Barnsey, "but I think yours is broken or something."

She took her tape back and tried it. She smiled, and her smile was good. It kind of stretched across her face and curled up at the ends.

"Naa," she said. "Ya just 'av ta listen, mate. Closely, like."

So Barnsey listened closely. He turned it up. There was a rain forest. There were ravens croaking and other birds twittering away. And there were bells. He thought someone was playing them, but after a while he realized that it was just the rain playing them, the wind. He kept waiting for the music to start. He didn't know what the music would be. Any moment a drum would kick in, he thought,

then a synthesizer all warbly and a guitar keening high and distorted and a thumping bass and, last of all, a voice. Maybe singing about trees. About saving them.

But no drum kicked in. Maybe the tape *was* broken?

It took him a minute to realize Dawn was tapping him on the shoulder. She had his Xiphoid Process tape in her hand and a cranky look on her face.

"This is killer-diller," she said.

"You like X.P.?" he asked.

"It's rubbish."

Barnsey laughed. *Rubbish*. What a great word. He pulled out Rain Forest with Temple Bells.

"What ya think?" she asked.

"It's rubbish."

Then they both started to giggle. And now people stared at them as if they were in cahoots and going to ruin the whole trip for everyone. Dawn hit him on the arm to shush him up.

He showed her the hologram cover of the X.P. tape.

"You think it's their mum?" she asked.

"Maybe," he said. He wished he could think of something to say. He just flipped the picture a few times. She leaned toward him. Her hand out.

"Dawn," she whispered.

It took him a minute to realize she was introducing herself. "Barnsey," he whispered back, as if it was a code. He shook her hand.

He offered her some chips. She took the whole bag and made a big deal of holding it up to the light so she could read the ingredients. She shuddered.

"It's a bleedin' chemical plant in 'ere," she said.

"Rubbish," said Barnsey. Then he dug out the trail mix

and they both settled down to listen to their own tapes. Barnsey turned X.P. down to 2 because there was no way Dawn would be able to hear her forest with Spice-box wailing on the guitar and Mickey Slick pounding on the drums. After a couple of cuts he switched it off altogether.

He found himself thinking of the time he had traveled with his father out to British Columbia, where he was from, to Denman Island. He remembered the forest there, like nothing he'd ever seen in southern Ontario. Vast and high. It had been a lovely summer day with the light sifting down through the trees. But, he thought, if it rained there, it would sound like Dawn's tape.

He didn't put a tape in his cassette. He left the ear-phones on and listened to the hum of the bus instead.

"It's not so long."

It was the bus driver. Barnsey woke up with his mouth feeling like the inside of a bread box.

There was a stirring all around. People waking, stretching, chattering sleepily and my-my-ing as they looked out the windows. The bus was stopped.

"Will ya lookit that," said Dawn. Her nose was pressed up against the window. Outside was a nothingness of white.

They had pulled off the highway into a football field-sized parking lot. Another bus was parked up ahead. Through the swirling blizzard they could see lots of trucks and cars in the lot. It wasn't the stop Barnsey remembered from previous trips.

Barnsey could see the driver standing outside without his jacket, his shoulders hunched against the driving snow. He was talking to another bus driver, nodding his head a lot and stamping his feet to keep warm. Then he hopped

back on the bus and closed the door behind him.

"Seems like we've got ourselves a little unscheduled stop," he said. "The road's bunged up clear through to Mattawa."

Someone asked him a question. Somebody interrupted with another question. The driver did a lot of answering and nodding and shaking his head and reassuring. Barnsey just looked over Dawn's shoulder at the outside, shivering a bit from sleepiness and the sight of all that whirling snow. Dawn smelled nice. Not exotic like the perfume his mother wore, but kind of bracing and clean.

"This here place doesn't have a name," said the driver. People laughed. He was making it all sound like fun. "But the barn there with all the blinking lights is called the Cattle Yard, and the owner says yer'all welcome to come on down and warm yerself up a spell."

Passengers immediately started to get up and stretch and fish around for handbags and sweaters and things. There was an air of excitement on the bus. The Cattle Yard was a big roadhouse painted fire-engine red and lit up with spotlights. It was no ordinary way station.

Still sleepy, Barnsey made no effort to move as people started to file past him pulling on their coats. Dawn still had her nose pressed up against the glass.

"D'ya know where I spent last Christmas?" she said. Barnsey thought for a moment, as if maybe she'd told him and he'd forgotten.

"In Bethlehem," she said.

"The Bethlehem?"

"That's right," she said. "In a bar."

Barnsey looked at Dawn. She was smiling but not like she was fooling. "There are bars in Bethlehem!"

She laughed. "Brilliant bars. Smashing litt'l town is Bethlehem."

Barnsey tried to imagine it.

Then the bus driver was beside him. "Here, you might need this," he said. And with a flick of his fingers he produced the half-a-twenty Barnsey's mother had given him. Barnsey was about to explain that it was meant to be a tip, but the driver waved his hand in protest. "Just don't get yourself all liquored up, son," he said, and then, laughing and clapping Barnsey on the back, he headed out of the bus.

"Wha's that then?" asked Dawn, looking at the half-a-twenty-dollar bill. Barnsey pulled the other half out of his pants pocket and held them side by side.

"Hungry?" he said.

And she was hungry. He hadn't realized how skinny she was, but she stored away a grilled cheese sandwich in no time and two pieces of apple pie with ice cream. She ordered hot water and fished a tea bag from deep in her ratty black leather jacket.

"Ginseng, mate," she said. "Nothing illegal."

But Barnsey had only been noticing how stained the tea bag was and the little tab at the end of the string which had strange characters written on it.

It was all so strange. Strange for Barnsey to walk into a place with her, as if they were on a date—a thirteen-year-old and a twenty-year-old. He wondered if people thought she was his sister. He couldn't imagine his parents putting up with the way Dawn looked. She sure turned heads at the Cattle Yard. He wasn't sure if he minded or not. In his burgundy L. L. Bean coat, he didn't exactly look like he belonged in the place, either.

It was a huge smoke-filled bar with moose antlers on the knotty pine walls and two or three big TVs around the room tuned into the Nashville Network. There was a Leafs game on the TV over the bar. Just about everyone was wearing a trucker's hat, and nobody looked like they were leaving until maybe Christmas.

The bus passengers were herded down to one end where a section had been closed off but was now reopened. The bus drivers smoked and made phone calls and made jokes to their passengers about not getting on the wrong bus when they left and ending up in Timbuktu. Through the window and the blizzard of snow, Barnsey watched another bus roll in.

"I saw three ships cum sailin' in," sang Dawn. She was picking at Barnsey's leftover french fries—*chips*, she called them—trying to find ones that didn't have any burger juice on them. She was a vegetarian.

"Bloody heathen," she'd called him when he'd ordered a bacon burger and fries. He loved that.

"I've gotta go find the loo," she said.

"Bloody heathen," he said.

She flicked him on the nose with a chip as she clomped by in her Doc Martens. He wondered if it was possible to walk quietly in them.

"Rubbish," he said. He watched her walk through the bar toward the washrooms. Somebody must have said something to her because she suddenly stopped and turned back to a table where five guys in trucking caps were sitting. They looked like all together they probably weighed a ton, but that didn't seem to bother Dawn. She leaned up close to one of them, her fists curled menacingly, and snarled something right at his face.

Barnsey watched in horror, imagining a scene from some movie where the whole place would erupt into a beer-slinging, window-smashing brawl. Instead, the guy whose face she was talking at suddenly roared with laughter and slapped the tabletop. The other four guys laughed, too. One of them ended up spitting half a mug of beer all over his friends. Then Dawn shook hands with her tormentors and sauntered off to the loo, as she called it.

Barnsey felt like he would burst with admiration. He picked up her teacup and smelled the ginseng. It smelled dead. The writing on the little tab was Indian, he guessed. From India.

He looked around. On the big TV a country songstress with big country hair and dressed in a beautiful country-blue dress was draping silver tinsel on a Christmas tree while she sang about somebody being home for Christmas. Then the image would cut to that somebody in a half-ton truck fighting his way through a blizzard. Same boat we're in, thought Barnsey. Then the image would cut back to the Christmas tree and then to a flashback of the couple walking up a country road with a bouncy dog, having an argument in the rain and so on. Then back to the guy in the truck, the girl by the tree. It was a whole little minimovie.

Barnsey found himself trying to imagine X.P. dressing that same tinselly Christmas tree in that nice living room. But of course the guy in the truck trying to get home for Christmas would be the grim reaper or something, with worms crawling out of its eyes.

Then Dawn came back.

"What did you say to that guy?" Barnsey asked.

She smiled mysteriously. "I told 'im that if 'e'd said what 'e said to me in Afghanistan, 'e'd ave to marry me on the spot."

It was around eleven before word came through that it was safe to leave. The drivers got everybody sorted out and back on board. Everyone at the Cattle Yard yelled Merry Christmas and held up their beer glasses in a toast. The guy who had been rude to Dawn stood and bowed as she passed by, and she curtsied. Then she made as if she was going to bite off his nose, which made his ton of friends roar again, their fat guts shaking with laughter.

By then Barnsey knew that Dawn had just got back from Nepal, where she'd been traveling with "er mate" ever since she left Israel, where she'd been working on a kibbutz after arriving there from Bloody Cairo, where she'd had all her kit stolen. Before that she'd been in Ghana and before that art school. Barnsey didn't know what a kit was, or a kibbutz. He wasn't sure where Nepal was, either, or what or who 'er mate might be. But he didn't ask. She'd called him mate, too.

On the bus the excitement of the unscheduled stop soon died down. The roads were only passable so it was slow going. It was kind of nice that the three buses were traveling together. In a convoy, the driver had called it. It sounded reassuring. Soon people were falling asleep, snoring. But not Barnsey. He sat thinking. Trying to imagine working on a flower farm in Israel, the heat, the fragrance of it. Trying to imagine Bethlehem.

"Was it cold?"

"Freezin' at night," she said.

"See any stables?"

She laughed. "No, but I did see a good-sized shed behind a McDonald's."

Barnsey laughed. He tried to imagine the holy family pulling into Bethlehem today and huddling down in a shed out back of a McDonald's. Maybe Joseph would have a Big Mac. But Mary? Probably a vegetarian, he decided.

Quietness again.

"What kind of a store is it your people 'ave, master Barnsey?"

"A gift store," he said.

"Ah, well," said Dawn. "I can imagine a gift store would be busy at Christmas."

Finally, Barnsey dozed off. And the next thing he knew, the bus was slowing down and driving through the deserted streets of North Bay. It was past 2:00 A.M.

"That'll be 'er," said Dawn as they pulled into the bus terminal. Somehow she had recognized his grandma Barrymore in the little knot of worried folks waiting.

Barnsey just sat drowsily for a minute while people stirred around him. He felt like he weighed a ton.

"Get on with ya," said Dawn in a cheery voice. And she made a big joke of shoving him and roughhousing him out of his seat as if he was Dumbo the elephant. Then she gathered up all his wrappers and cans and threw them at him, saying, "Ere—lookit this! Yer not leavin' this for me, I'ope." Barnsey found himself, weak with laughter, herded down the aisle. At the door he said good-bye and hoped that her trip to Vancouver would be nothing but rubbish the whole way. Grandma Barrymore was standing at the foot of the bus stairs. Much to her surprise, Dawn grabbed Barnsey by the head and scrubbed it hard with her knuckle.

"In Afghanistan, you'd have to marry me for that," said Barnsey.

"Toodle-oo, mate," said Dawn, blowing him a kiss. She blew one at Grandma Barrymore, too.

Dawn would arrive in Vancouver on Christmas Eve. Barnsey thought of her often over the next couple of days. He'd check his watch and imagine her arriving in Winnipeg, although all he knew of Winnipeg was the Blue Bombers football stadium which he'd seen on TV. And then Regina and Calgary. He imagined the three buses like wise men still traveling across the country in a convoy. But as much as Barnsey thought about Dawn, he gave up trying to talk to anyone about her. Grandma had seen her but only long enough to get the wrong impression. And when Barnsey tried to tell his cousins about her, it came out like a cartoon, with her wacky hair and her fat black boots. He couldn't get Dawn across to them—the *life* of her—only the image of her, so he stopped trying.

There was a lot to do, anyway. His cousins had arranged a skating party and Grandma wanted him to go shopping with her and help with some chores around the house. He enjoyed all the attention she showered on him. She spoiled him rotten just the way she'd spoiled his father rotten, she liked to say. But he'd never noticed it quite so much as this year. Anything he looked at, she asked him if he wanted it. It was spooky.

Then it was Christmas morning. It was a four-hour drive from Ottawa. His parents would arrive by 1:00 P.M. and that's when the celebration would start. When he saw his father's Mustang coming up the driveway at 10:30 A.M., Barnsey knew something was wrong.

He didn't go to the door. He watched from the window. They should have come in the big car. But there wasn't any they. Just his dad.

"Matthew, go help your dad with his parcels," said Grandma.

"No," said Barnsey. He was remembering the last time he had looked at his mother in the bus terminal, through the window. The look on her face. "It won't be so long," she had said.

It wasn't that his mother was sick or there was some problem at the store; they would have phoned. Barnsey's mind grew icy sharp. Everything was suddenly clear to him. He could see a trail of incidents leading to this if he thought about it. You just had to tilt life a bit, and there was a whole other picture.

His parents weren't very talkative. They didn't chatter; they didn't argue. And yet in the moments while his father unpacked the trunk of his salt-stained Mustang and made his way back and forth up the path Barnsey had shoveled so clean just the night before, Barnsey could hear in his head all the signs and hints stretching back through the months—how far, he wasn't sure. Right up to now, the past few days, with Grandma so attentive. Spoiling him rotten.

Then his father was in the living room, still in his coat, waiting for Barnsey to say something. His face didn't look good but to Barnsey he didn't look anywhere near bad enough, all things considered. Grandma Barrymore was standing behind him with her hand on her son's shoulder. She looked very sad. They waited. Barnsey looked out the window. Old-fashioned lace curtains hung across the living-room window. They were always there, even when

the drapes were open. Barnsey stood between the lace and the cold glass. He turned and looked at his grandma through the veil of the curtain.

"I wish you'd told me," he said.

"She didn't know, Matthew," said his father. "Not for sure."

The ball was back in his court. That was the way his parents were with him. Lots of room. His father would not press him. He could wait forever and his father would never start saying stuff like "I'm sorry, honey," or "It's all for the better," or "Your mother still loves you, Matthew." Barnsey could wait forever and he wouldn't see his father cry. He would have done his crying already, if he had any crying to do. His parents didn't hold much with spontaneity.

He glanced at his father in his black coat and white silk scarf. He wanted him to do something.

Barnsey stared out the window.

"When did you get the ski rack," he said.

"When I needed something to carry skis."

There was a pair of skis on the top of the car. Rossignols.

"They're yours," said his father. "I couldn't exactly wrap them."

Barnsey had been wanting downhill skis. And one of the large boxes piled in the hall was probably a good pair of ski boots. His parents would have read consumer reports about this. Even while they were breaking up.

"Your mother is hoping maybe you'll go on a skiing trip with her later in the holidays. Maybe Vermont."

"That would be nice," said Barnsey. Then he left the window and went to his room. His father didn't follow. It was his way of showing respect. He didn't say that; he

didn't have to. He was there for him. He didn't say that, either, but it was something Barnsey had heard often. "We're here for you, chum."

Barnsey stayed in his room a long time, long enough to hear both sides of the new X.P. tape he hadn't had time to listen to on the bus. He flipped the cassette cover again and again. The ghouls glowed and vanished. Glowed and vanished.

Then his mother phoned. They had probably worked all this out, too.

"Must have been a terrible shock . . .

"Decided it was best this way . . .

"We couldn't dissolve the partnership in time for the shopping season. . . .

"Couldn't see us play-acting our way through Christmas . . ."

Barnsey listened. Said the right things.

"Do you think we could head down to Mount Washington for a long weekend?" said his mother. "Give those new skis a workout?"

"They aren't new," said Barnsey.

"They sure are," said his mother. "They're the best."

"There's a lot of snow between here and Ottawa," said Barnsey. It took his mother a minute to realize it was a joke. A lame kind of joke.

Then, with plans tentatively set and the call over and his mother's voice gone, Barnsey joined his father and his father's mother in the living room. They both gave him hugs.

"You okay?" his father asked.

"Yes."

"You want to talk now? Or later?"

"Later," he said.

"I think we all need a sherry," said Grandma. She poured Barnsey a glass. He liked the idea better than the sherry.

They ate lunch and then, since it was Christmas, they sat in the living room opening presents. Barnsey kept glancing at his father, expecting to see a little telltale tear or something. But all he ever glimpsed were the concerned looks his father was giving him.

He took his father's place as the hander-outer. When he came to his own present for his mother, he said, "Where should I put this?" His father piled the package on a chair in the hall.

Barnsey wasn't looking forward to Christmas dinner at his aunt's. His father had already taken that into consideration and would stay with him at Grandma's, if he liked. They'd make something special, just the two of them. But when he phoned to explain things, his sister wouldn't hear of them not coming, and his cousins got on the phone and begged Barnsey to come and try out their new computer game and in the end he went. Nobody talked about his mother not being there, at least not while Barnsey was around. Everyone was really considerate.

In bed he lay thinking about what kind of a place his mother would live in. She was the one leaving the relationship, so she was the one leaving the house. Barnsey wondered whether there would be a room for him or whether she'd just make up a couch when he came to visit. Then he wondered if his father would stay in Ottawa or move back to the west coast. He lay trying to think of as many things as could possibly go wrong so that he wouldn't be surprised by anything.

"I just wish someone had told me," he said.

"We'll turn it around, Matthew," his father had said

when he came to say good-night. "We'll make this into a beginning."

Was that from some kind of a book? How could he say that? Couldn't he tell the difference between a beginning and an ending?

There wasn't another man in his mother's life. His father hadn't found another woman.

"At least it isn't messy," his father said. He needn't have bothered. Nothing they ever did was messy.

In his sleep, Barnsey escaped. He found himself back on the bus.

"Rubbish," Dawn kept saying, and she pounded her fist into her palm every time she said it. Then the man in the seat ahead of them turned around, and it was the guy who had been in the country video heading home in his half-ton through a blizzard to his tinsel-happy lady.

"Rubbish," he said. And then all of Xiphoid Process, who were also on the bus, turned around in their seats, pounding their fists and saying, "Rubbish. Rubbish. Rubbish." Soon the bus driver joined in and the whole bus sang a "Hallelujah Chorus" of "Rubbish, rubbish, rubbish."

Barnsey woke up, his head spinning. All he could think about was rubbish. He thought about the talk he had to have with his father that day. His father wouldn't insist, but he would be expecting it. He would say all the right things and, before Barnsey knew it, he would be saying all the right things, too. They'd talk it out. Get things out in the open. It would all make perfect sense.

Rubbish.

So he left.

He didn't pack a bag, only stuffed a couple of extra things in his backpack. He wasn't sure what a ticket to

Vancouver cost, but it didn't matter. He had his bank card. He had no idea what he was going to do and he didn't care. He would not run away like his mother, carefully planning it all out first. How far did that get you?

And so, by nine o'clock on Boxing Day morning, he was at the bus terminal, a ticket in his pocket, sitting, waiting. He had his Walkman with him and he rooted around in his backpack for a tape other than X.P. He didn't think he could take that right now.

He had five or six tapes in the bottom of his bag. He hadn't emptied it since the trip. He pulled them out one by one: Alice in Chains, Guns 'n' Roses, Nirvana, Rain Forest with Temple Bells—

Rain Forest with Temple Bells?

Barnsey stared at the tape. He must have packed it up in the dark of the bus without noticing. Then he saw a piece of paper sticking out of the edge of the cassette. He opened the cassette and took out a folded-up note written in pencil.

*dear barnsey this is for the meal and for the fun
and for when the rubbish gets to be too much but
you're snoring while i write this so maybe i'll
shove the note in your gob!!! no i won't i'll hide it
and it'll be your xmas present from dawn xox*

Barnsey found himself shaking. He read the note again and again. He smelled it—trying to catch her scent—and held it and then folded it up carefully and put it back in the cassette. He took out the tape and put it on. He closed his eyes and let the rain on the bells and the ravens and the smaller birds and the ferns and the trees and the wind fill his ears.

How crazy it had been to wait for the music to start. You

had to supply your own. Make it out of what was there. Because there was more than the rain forest. Beyond his earphones there were people talking, departure announcements, a man waxing the floor—they were all part of the music.

Then suddenly there was a voice much closer.

"Matthew," said the voice, and Matthew became part of the music. "Matthew." Barnsey opened his eyes and his father was sitting there beside him. He touched his son's knee so tentatively, it was as if he was afraid the boy might break, like some fragile ornament from the gift store. Barnsey wondered if he would break, but he wouldn't. He was going to Vancouver to find Dawn. He stared at his father, who could not know this.

His father was in his black coat and white scarf, but his hair was a complete mess. Barnsey had never seen his father out of the house unshaven and looking such a mess. His eyes were the worst mess of all.

"You look scared," said Barnsey. His father nodded. He didn't speak. He was waiting, giving Barnsey space. Then Barnsey looked closer into those wrecked eyes and suddenly it occurred to him that his father wasn't giving him space. He just didn't have any idea what to say or do. He was a million miles from the safe world of the gift store. He looked as if all his careful plans had fallen through.

Barnsey wanted to shake him, to knuckle his head, to throw stuff at him, laughing and shoving. To wake him up.

"Here," he said. He took off his earphones and put them on his father.

"What is it?" his father asked. "Is it broken?"

"No," said Barnsey. "Listen closely."

He watched his father listening. Barnsey listened, too. He didn't need the earphones to hear it.

Beautiful & Cruel

Sandra Cisneros



Welcome to
ENGLISH

Dawn Comprehension Questions

1. What is Barnsey's actual name? Pg 93
 - a. Thomas
 - b. Matthew
 - c. Ryan
 - d. Alex

2. What is Barnsey's main concern before getting on the bus? Pg 93-94
 - a. Sitting next to someone who smells
 - b. Sitting next to someone fat
 - c. Sitting next to someone weird
 - d. All of the above

3. How many earrings does Barnsey describe Dawn as having? Pg 96
 - a. 2
 - b. 5
 - c. 7
 - d. 9

4. What got Barnsey and Dawn to talk to each other? Pg 97
 - a. He is interested in her hair and asks her about it
 - b. He shares his chips with her
 - c. They accidentally end up listening to each other's cassette tape
 - d. Nothing, they don't talk the entire trip.

5. What weather event caused the bus to stop? Pg. 100
- a. Tornado
 - b. Thunder Storm
 - c. Hail Storm
 - d. Blizzard
6. How does Dawn handle being harassed when the bus stopped? Pg 103-104
- a. She ignores it and keeps to herself
 - b. She physically fights the guys
 - c. She leans in close and says something to them
 - d. She tells the bartender who kicks them out
7. Where was Dawn immediately prior to arriving in Canada? Pg 105
- a. Nepal
 - b. Israel
 - c. Cairo
 - d. France
8. What kind of store does Barnsey's family own? Pg 106
- a. A hardware store
 - b. A gift store
 - c. A candy store
 - d. A pet store
9. What was unusual about Barnsey's father's arrival at his grandparent's house? Pg 108
- a. He was late
 - b. Barnsey's mother wasn't with him
 - c. He had a new car
 - d. He didn't have presents with him

10. What present does Barnsey's father give him for Christmas? Pg 109
- a. A pair of skis
 - b. A puppy
 - c. A sketchbook
 - d. A vacation to Vermont
11. Which of Barnsey's parents left the relationship? Pg 111
- a. His mother
 - b. His father
12. Where does Barnsey try to go the morning after Christmas? Pg 113
- a. New York
 - b. New Hampshire
 - c. Vancouver
 - d. Connecticut
13. What surprise does Barnsey find in his bag? Pg 113
- a. Twenty dollars
 - b. A new bag of chips
 - c. A Alice in Chains tape
 - d. A Rain Forest with Temple Bells tape
14. Who finds Barnsey at the station? Pg 114
- a. His mother
 - b. His father
 - c. His cousin
 - d. His grandmother

15. Why was Barnsey going to Vancouver? Pg 114
- a. To find his mother
 - b. To go on vacation
 - c. To find Dawn
 - d. To watch a hockey game

Dawn Vocabulary

Directions: Look up the definition of each word and write it on the definition line. Then use the word in a grammatically correct sentence on the sentence line.

Frantic pg 93

Definition: _____

Sentence: _____

Spontaneity pg 94

Definition: _____

Sentence: _____

Uncharacteristic pg 94

Definition: _____

Sentence: _____

Triumphantly pg 95

Definition: _____

Sentence: _____

Irrational pg 95

Definition: _____

Sentence: _____

Reassuring pg 101

Definition: _____

Sentence: _____

Convoy pg 105

Definition: _____

Sentence: _____

Herded pg 106

Definition: _____

Sentence: _____

Parcels pg 108

Definition: _____

Sentence: _____

Attentive pg 108

Definition: _____

Sentence: _____

Dissolve pg 110

Definition: _____

Sentence: _____

Tentatively pg 110

Definition: _____

Sentence: _____

Considerate pg 111

Definition: _____

Sentence: _____

Departure pg 114

Definition: _____

Sentence: _____

Fragile pg 114

Definition: _____

Sentence: _____

Dawn Short Answer Questions

1. On page 96 Barnsey describes Dawn the following way:

“It was only the way she looked that he had any problem with. The nine earrings, the nose rings, and the mohawk in particular – orange along the scalp and purple along the crest as if her skull was a planet and the sun was coming up on the horizon of her head. She was about twenty and dressed in all black, with clunky black Doc Martins.

Based ONLY on the description of Dawn how would you feel if you had to sit next to her? Explain why you would feel that using 3-5 complete sentences.

2. On page 105 the author states that:

“By then Barnsey knew that Dawn had just got back from Nepal, where she’d been traveling with “er mate” ever since she left Israel, where she’d been working on a kibbutz after arriving there from Bloody Cairo, where she’d had all her kit stolen. Before that she’d been in Ghana and before that art school.”

What can you infer about Dawn based on the list of places she has visited? Reply with 2-3 sentences.

3. On page 107 it says

“ But as much as Barnsey thought about Dawn, he gave up trying to talk to anyone about her. Grandma had seen her but only long enough to get the wrong impression. And when Barnsey tries to tell his cousins about her, it came out like a cartoon, with her wacky hair and her fat black boots. He couldn't get dawn across to them – the life of her – on the image of her, so he stopped trying.”

Have you ever been in a situation where you just couldn't find the right words to get your point across in a way other people would understand? If so, what happened? If not, what would you have done if you were in Barnsey's shoes? Reply using 3-4 sentences.

4. On page 109 it says

“Barnsey had been wanting downhill skis. And one of the large boxes piled in the hall was probably a good pair of ski boots. His parents would have read consumer reports about this. Even while they were breaking up.”

What does this excerpt tell you about how Barnsey’s parents feel about him? Use evidence from the text above to support your response. Answers should be 3-4 sentences.

5. Throughout the story Dawn uses slang such as “rubbish”, “loo”, and “mate”. Based on these examples and the others from story what country do you think Dawn is from? Use evidence from the story to support your reasoning. Responses should be 3-4 sentences.

Dawn Long Answer Questions

1. Do you think it is ever ok to judge a person based on the way they look? Use examples from the story “Dawn” as well as examples from your own life to support your response. Responses should be at least two complete paragraphs (5-7 sentences in each paragraph)

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- This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



Welcome to
SOCIAL STUDIES

Dawn Canadian Map Drawing

Directions: In the story “Dawn” Barnsey travels from Ottawa to North Bay in Canada. In the space below there is a blank map of Canada complete the following tasks:

1. Use the internet to research the location of Ottawa and North Bay and label each location on the map.
2. Use the internet to research the best route between Ottawa and North Bay and draw the route on the map.
3. Research some of the physical features (mountains, rivers, planes, ect) and draw them on the map.





Renewable and Nonrenewable Resources

Although Canada is rich in natural resources like coal and petroleum, these resources are ultimately limited. Engineers and scientists are always looking for ways to use resources in smarter ways. But you can start innovating at any age! Read on to find out how middle school students are experimenting with different sources of energy.

The teams were ready. The students placed their model cars, which were less than two feet long, behind the starting line.

A loud voice rang out, "On your mark, get set, go!" The race began.

The small cars sped down the racetrack as the students held their breath. Which teams would win awards for building the fastest cars? Which would win for the best designs?

All car races are exciting, but this one was special. It was part of the Junior Solar Sprint. Teams of middle school students build model cars that run only on solar energy. This type of energy comes from sunlight. Then the teams race their cars down a track.

Why would students build cars that use energy from the sun? One reason is to have fun. But another reason is to learn about renewable resources. Renewable means that we can get more of something. Some energy comes from renewable resources like sunlight, wind, or water. This kind of resource isn't used up. We can get more of it in a short time because we always have sunlight, wind, and water.

Why is getting energy from renewable resources important? Humans use lots of

SETTLEMENT PATTERNS ...

energy every day. Energy keeps our houses warm in winter and cool in summer. Energy lights our rooms and runs our computers and televisions. It fuels our cars, buses, and airplanes.

Canada is rich in energy resources that lie under the ground, such as coal, oil, and natural gas. These resources are called fossil fuels. Fossil fuels come from the fossils, or remains, of plants and animals. These remains have been buried in Earth for millions of years.

Someday we will use up these resources, which is why they are called nonrenewable resources. These resources cannot be made again in a short time. Because of this, we need more energy sources.

There is a second reason to find new energy sources. Coal, oil, and gas must be burned to make power. Burning fossil fuels can make the air unhealthy to breathe and puts more carbon dioxide in the air. Carbon dioxide can also increase the global temperature.

Using energy from sunlight, wind, and water doesn't pollute the air. But getting this energy is challenging. Right now it's very expensive to turn these forms of energy into power we can use. But scientists are always looking for ways to get more energy from renewable resources.

That's why the Junior Solar Sprint is so exciting. Racing model cars is just a first step. Some of these students may become scientists and engineers. One day, they could help to find new ways to bring us the energy we need.

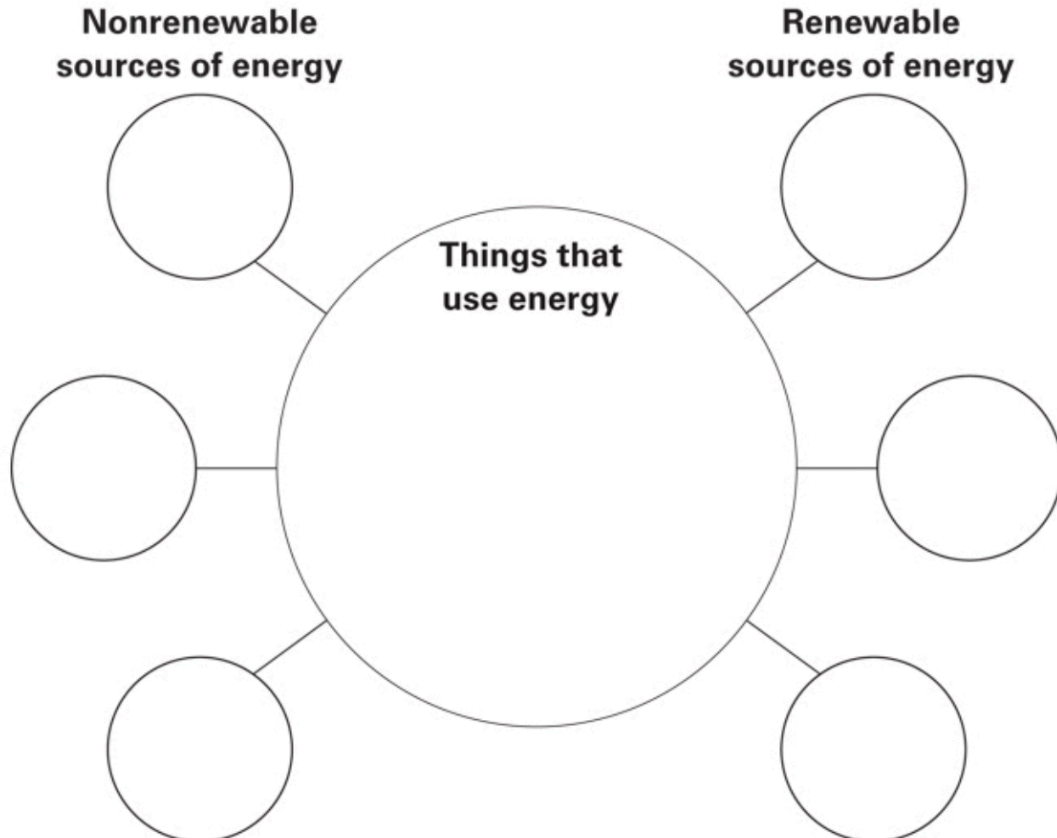
How do you think the distribution of renewable and nonrenewable resources impacted Canada? As you study each region throughout this course, be on the lookout for the impact of major renewable and nonrenewable resources.

What things in your life use energy? Where might that energy come from? Answer these questions by completing the diagram below.

- In the big circle, draw at least four things in your life that use energy.
- On the left side of the diagram, write one nonrenewable source of energy in each circle.
- On the right side of the diagram, write one renewable source of energy in each circle. Use the word bank to help you.

Word Bank

water
natural gas
oil
wind
coal
Sunlight



1. What nonrenewable and renewable resources are found in Canada?

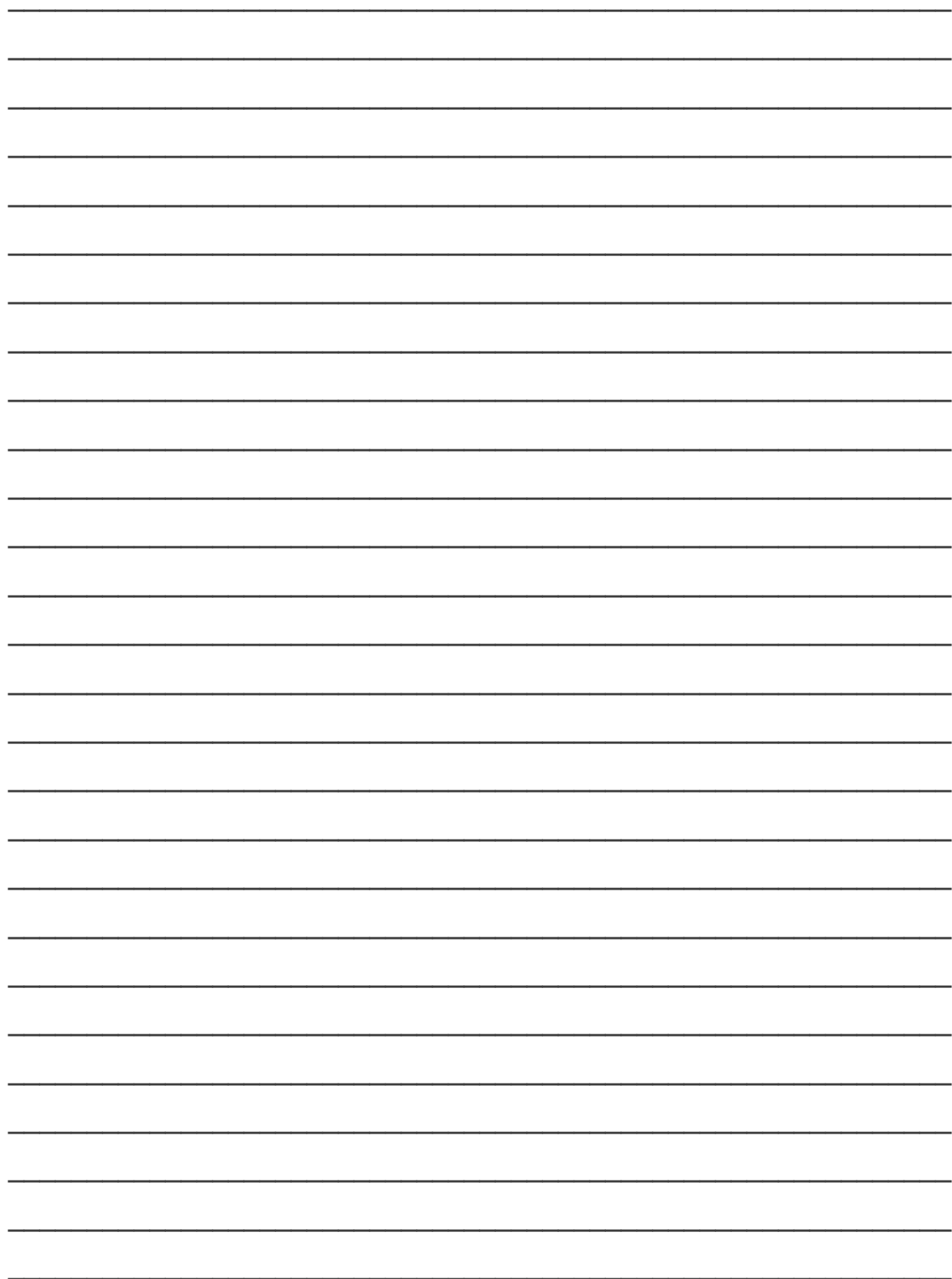
2. Based on what you know about Canada's resources, how do you think the distribution of resources affect Canada?

3. Suppose the world got most of its energy from renewable resources. How might the environment be different? Write two ways below.

Canadian Research Report

Directions: Pick either the city of Ottawa or the town of North Bay. Do some independent research on the location of your choice and write a research report that covers the following topics: Language spoken, activities/things to do, natural landforms, jobs in the area, and economics. If you need help formatting your report use the report template on Google Docs to guide you. Responses should be three paragraphs (5-7 sentences are in each paragraph).

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Welcome to
SCIENCE



A biodome is a large glass dome with a human-made ecosystem inside.

Biodome File 1: News Stories

Group Builds Ecosystem from Scratch

The Econauts, a local group of space fans, have built a glass dome bigger than a football field. Inside, they have installed their very own ecosystem, complete with trees, plants, and animals. The dome is completely enclosed, but the plants and animals inside should have all the air and water they need to survive. This type of enclosed ecosystem is known as a biodome.

Members of the group plan to live sealed inside this biodome for several years. Their aim is to find out whether humans could build domes like this on the Moon, Mars, or other planets, creating livable spaces and food sources out in space.

The members of Econauts are not astronauts or scientists, just space fans who hope to live in space someday. Group members have varied backgrounds, including careers in business, advertising, gardening, medicine, and goat farming.

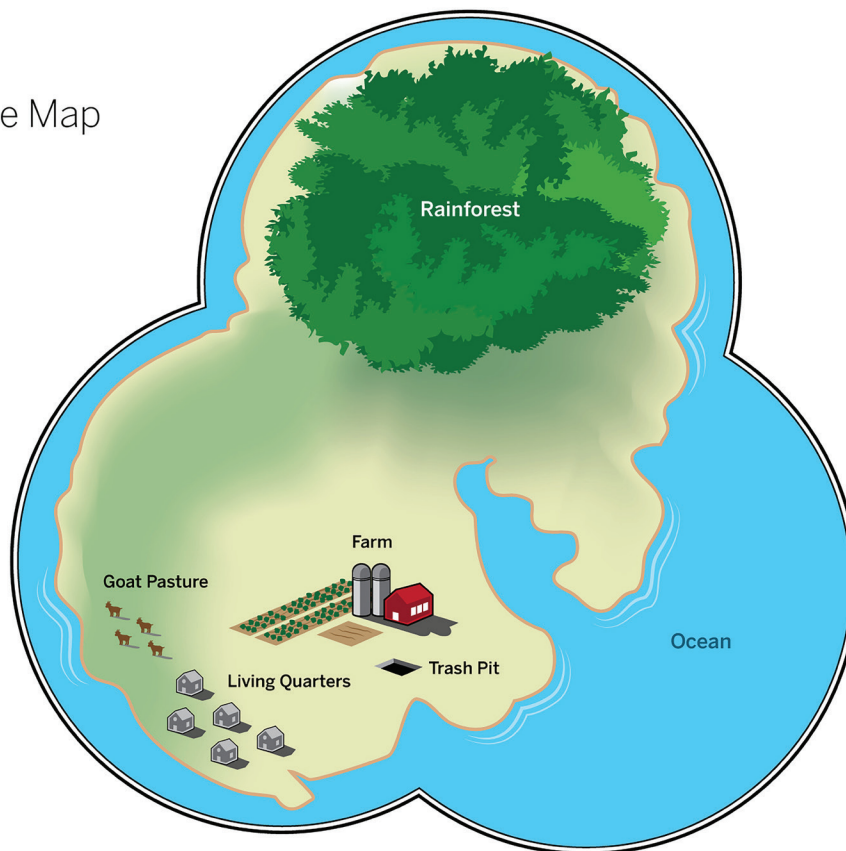
Other organizations have attempted to build biodomes in the past, with little long-term success. Ecosystems are complicated, and it's not so easy to create one that can survive in a sealed glass dome. In order to design their biodome, the Econauts group has hired expert ecologists to give their advice on what kinds of plants and animals to include, and how many of each. With the advice of these ecologists, the group members hope their constructed ecosystem will be self-sustaining, with plenty of plants for the animals to eat, plenty of sunlight and water for the plants, and plenty of air for both.

The human occupants will also be eating food farmed and raised in the biodome. Econaut Sarah Willard stated, “I’m really excited to live inside this biodome and help take care of the animals and plants. It will feel like being one of the first humans to live in a colony on another planet.”

Biodome Fails: Ecologists to Determine Why

Five years ago, a local group of space fans called the Econauts constructed an ecosystem sealed under glass—a biodome. Recently, the group noticed an ominous decrease in the populations of organisms: the ecosystem appeared to be in the process of collapsing. The occupants were safely removed from the biodome, but the cause of the crash is still a mystery. A group of expert ecologists has been hired to investigate the failed biodome and try to determine what went wrong. They will advise the Econaut group on how a second attempt could be improved.

Biodome Map



The failed biodome included an ocean and an area of land with a rain forest and a living area for the Econauts. The living area had a farm, living quarters, a goat pasture, and a pit for burying all trash and dead matter.

Biodome File 2:

Econaut Biographies & Job Descriptions

Each of the eight Econauts has been assigned a specific job based on his or her work and interests outside the biodome. They are expected to perform the requirements listed in the descriptions of their jobs, as well as record their activities at least once per season.

The Econauts



Water Maintenance:
Harrison Grant



Doctor : Ana Lopez



Goatherd: Sarah Willard



Hunter: Erica Li



Gardener: Jeff Anderson



Chef: Gabriel Gutierrez



Groundskeeper: Keith Yoo



Computer System
Operator: Celeste Parker

Why didn't they include an ecologist on the team? Ecologists understand how ecosystems work

Each Econaut has a job to do in the biodome.

Econaut Biographies

Harrison Grant is a 26-year-old water technician from Phoenix, Arizona, who has taken responsibility for the Econauts' water system. He has loved space since he was a little boy and has thought a great deal about possible water systems for use in space, though he isn't a professional space scientist.

Erica Li is a 22-year-old college student from Kihei, Hawaii. She is working toward a career in advertising. Erica grew up hunting wild pigs with her family and getting oysters and crabs from the ocean. She learned about the biodome while taking astronomy classes in college, and she can't wait to bring her hunting and foraging skills into the dome.

Sarah Willard is a 29-year-old goat farmer from Wenatchee, Washington, and she'll be caring for the Econauts' herd of twenty goats. Sarah has been an amateur astronomer since she was a teenager, and she never expected that her goat-farming skills would help people learn how to live in space. She's looking forward to keeping the biodome goats happy and healthy.

Jeff Anderson is a 28-year-old gardener from Fort Collins, Colorado, who is responsible for growing all of the Econauts' food. Jeff became interested in space on an eighth-grade trip to the Kennedy Space Center in Florida, and has dreamed since then of contributing to the future of humans in space. He hopes his work in the biodome will help future generations learn to grow food if they settle on other planets.

Ana Lopez is a 52-year-old doctor from Greenville, South Carolina, who will provide medical care in the biodome. Ana is fascinated by the idea of living in space, and has studied the medical needs of people living in enclosed spaces so she is prepared to take great care of the Econauts during their project.

Keith Yoo is a 24-year-old banker from Pittsburgh, Pennsylvania, who will serve as the Econauts' groundskeeper. Keith has no experience with maintaining an ecosystem, but he's interested in the psychology of people living in confined spaces, so he's excited to offer his services to the team.

Gabriel Gutierrez is the Econauts' chef. He is 35 years old and comes from Oklahoma City, where he specializes in farm-to-table cooking. Gabriel works with a local university to study ways of introducing more natural food into the diets of people in space, and he is excited about the challenge of cooking good food from limited sources.

Celeste Parker is a 38-year-old computer network administrator from Minneapolis, Minnesota. She has dreamed of living in space since she was a girl, and hopes to buy a ticket for one of the first commercial flights in space. She will run all of the technology required for the Econauts' biodome.

Econaut Job Assignments

Gardener: Jeff Anderson

Pick fruits and vegetables and deliver them to the chef. Make sure all plants are receiving enough water. Plant new fruits and vegetables as necessary.

Groundskeeper: Keith Yoo

Maintain biodome buildings and grounds. Rake up dead leaves, place them in sealed garbage bags, and bury them at least 6 feet underground.

Computer Systems Operator: Celeste Parker

Make sure all computer equipment is working properly, and enter all biodome data for graphing.

Water Maintenance: Harrison Grant

Check and maintain the water system so there is enough water available to all organisms.

Chef: Gabriel Gutierrez

Prepare breakfast, lunch, and dinner for each of the residents. Make sure food provides what the Econauts' bodies need.

Hunter: Erica Li

Hunt rabbits with bow and arrow and deliver to chef. Search for fruits and edible plants in the forest area.

Goatherd: Sarah Willard

Care for goats, making sure they have plenty to eat and drink. Milk goats and deliver milk to chef.

Doctor: Ana Lopez

Provide basic medical care and regular checkups to all biodome residents.

Burial Duty: All (this job rotates monthly)

In order to keep the biodome looking orderly and full of life, we will bury any animals or plants that die. They will be placed in sealed garbage bags and buried at least 6 feet underground. We will bury all garbage as well.



The Econauts will take turns burying all dead matter, droppings, and garbage deep underground.

Biodome File 3: List of Recommended Organisms to Include in the Biodome

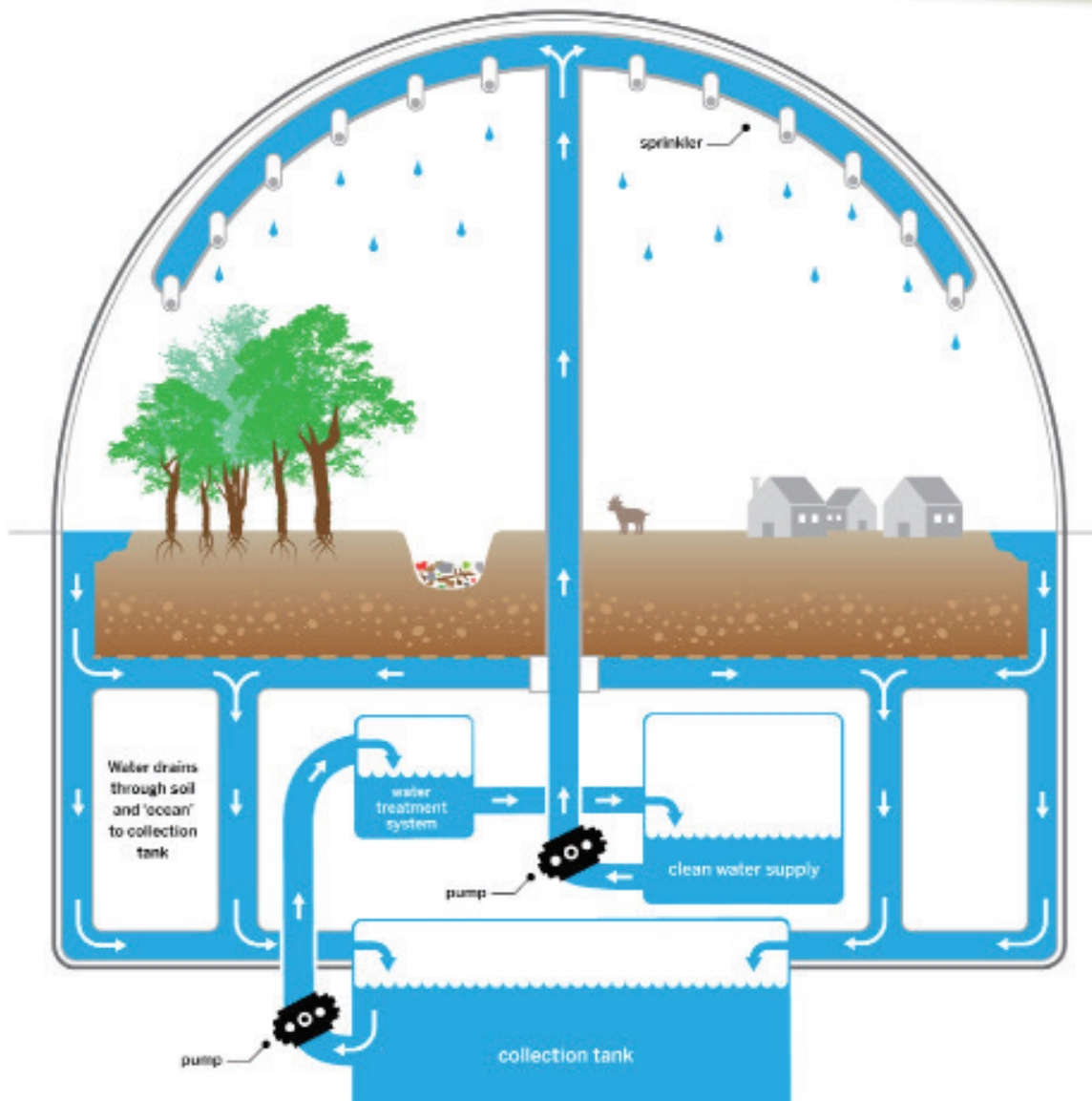
Producers	Primary Consumers	Secondary Consumers	Decomposers
bananas	pygmy goats	boars	worms
papayas	billy goats	tilapia (fish)	soil bacteria
sweet potatoes	chickens	spiders	soil fungus
beets	cockroaches	snakes	pill bugs
peanuts	ants	oysters	beetles
cowpea beans	bees	crabs	
rice	hummingbirds	reptiles	
wheat	bats	scorpions	
morning glories	moths		
phytoplankton (tiny algae)	zooplankton (tiny aquatic animals)		
rubber trees	butterflies		
mosses	termites		
ferns	turtles		
elodea (aquatic plant)	brine shrimp		
	rabbits		

I wonder why they decided not to include worms. Bacteria need worms to break dead matter into smaller pieces so bacteria can feed on it.

It's a good thing that they included producers for both land and water ecosystems.

Biodome File 4: Biodome Water System Diagram

Looks like the water system in the biodome was well designed. I can't see anything here that would cause the ecosystem to have problems.





Baby goats are so cute!

Biodome File 5: Goatherd's Journal

Year 1

Winter:

Today was the first day of my dream job: my first day herding goats in the Econauts' biodome! I'm so glad I got to join the team on this great adventure. I'm taking care of a herd of twenty adult goats between the ages of three and eight years. Most goats don't live longer than ten years, so I might lose a few before we leave the biodome. Still, I'm looking forward to what this experience holds for all of us.

Spring:

To keep our biodome environment neat and clean, the team is taking turns burying all trash, droppings, dead animals, and dead

plant matter. Guess whose turn it is this month? Mine! I've been raking up all the dead leaves and plants I can find, putting them into garbage bags, and tying the bags tightly before I bury them deep in the ground. At least there haven't been any dead animals this month! This isn't my favorite job here in the biodome, but I guess we all have to help out.

Summer:

Summer in the biodome is beautiful! The sun is shining, the birds are singing, and the goats are enjoying all the lush, green grass they can eat. Everybody seems happy and healthy.

Fall:

It's goat-breeding season here in the biodome. Fingers crossed that we'll have baby goats—we goatherds call them kids—in the spring! The vet came today for the goats' annual checkups, and said they're healthy.

Year 2

Winter:

The winter days are short and cold...and the winter nights are long and cold! There isn't much food available at this time of year, so I feed the goats hay from the alfalfa we grew last summer. At least they have thick winter coats to keep them warm. Four of our female goats are pregnant and should have their kids when spring comes! Until then, we just have to bundle up and try not to freeze.

Spring:

Our kids were born last week, and they sure are cute! The kids are eating well and growing quickly. It's such a wonder to watch these new little goats every day. My job is the best!

Summer:

It's my turn to bury our dead matter again. Burying our dead matter is never my favorite job, but it's especially tough this month because one of my older goats died last week. I sealed the body in a plastic bag and buried it along with all the dead leaves and plants, droppings, and trash. At least we have kids to help keep our goat population up. Otherwise, everybody in the biodome seems to be doing well.

Fall:

It's breeding season again! The vet visited for the goats' yearly checkup and said they're in good health. Looks like we're in for another good year in the biodome.



The goats are getting a nice, healthy diet of grass here in the biodome.

Year 3

Winter:

Winter again, and one of the goats died. I'm not sure what happened—she wasn't very old, and she didn't seem sick. I'm sad to have lost one of the herd. Otherwise, we're all doing pretty well and are trying to stay warm until spring.

Spring:

I love spring! The warm weather is much more comfortable, and it's good for the goats to have some fresh grass to eat. Two of my goats had kids this year. They're so cute, and I'm glad we have kids, since we lost a couple of older goats in the last year. It's my turn to bury dead matter again. It's a dirty job, but I think I'm getting used to it.

Summer:

I can't figure out why, but it seems like we've harvested less alfalfa this summer than we did in the past. That means there's less for the goats to eat now, and they'll have less hay for the winter. Nobody's sure why, since we're getting plenty of sunlight in the biodome. I guess I'll have to start feeding the goats a bit less, so we don't run out.

Fall:

Time for the goats' yearly checkup. The vet said the goats don't have any diseases, but they're looking a bit thin. I guess we're seeing the effects of this summer's alfalfa shortage. I'm not sure what to do: I don't want to use up too much hay, but I want to make sure the goats have enough to eat. Anyway, it's breeding season again. Hoping for some kids in the spring!



The goats love the alfalfa we harvested last summer!

Year 4

Winter:

I'm starting to get worried. Two of my goats died this winter, and I'm not sure why. The rest of the goats look a little thin, but they eat everything in sight, and they don't have any diseases. I think we have enough hay to get us through the winter. Maybe everything will get better once the goats can eat some fresh spring grass.

Spring:

None of the goats had kids this spring. I'm so disappointed. Kid goats are so much fun, and I like to think the herd is doing well. It's my turn to gather and bury dead matter again; I raked up a lot of leaves and droppings, but at least there weren't any dead animals to bury. Looking forward to a good summer harvest for the goats.

Summer:

This year's alfalfa harvest is even smaller than last year's. I'm worried about how we're going to feed the goats enough this summer and still have enough alfalfa to make hay for the winter.

Fall:

It's breeding season again, and time for our yearly visit from the vet. She said the goats don't show any signs of disease, but that they are looking very thin. This seems to be a problem with many of the animals in the biodome: they are all getting thinner. I don't know what to do; the alfalfa crop is still producing less than in the first few years of the biodome project.

Year 5

Winter:

Three more goats died this winter. I was sad to lose them, and I'm confused about what's happening to the goats. I know they're not sick, but why aren't they really healthy? Should I be doing something different? Something has to change soon.

Spring:

Another spring with no kids born. We now have fewer goats than we started with, even though six kids were born in the early years of the biodome. I don't like to see the herd getting smaller. It's my turn to gather and bury dead matter again.

Summer:

This summer's alfalfa harvest was the smallest yet. I'm not sure what the goats are going to eat this winter. They're already too thin.

Fall:

We've all been removed from the biodome. It turns out all of the populations had started to decrease, and it wasn't safe for us to stay. The vet couldn't find any signs of disease, though. I wonder what happened. I'm so sad that we won't be able to complete our mission.



I don't know why our goats are looking so thin—it's scary.

Biodome File 1: The Econauts' Letter

1. What problem are the Econauts experiencing inside the biodome?

2. Why are the Econauts asking student ecologists for help?

3. What evidence suggests that the biodome ecosystem is not functioning normally?

Biodome File 2: Biodome Overview and Organisms

1. What types of living things are included in the biodome ecosystem?

2. Why is biodiversity important in a closed ecosystem like the biodome?

3. How do the plants and animals in the biodome depend on one another?

Biodome File 3: Carbon Dioxide Data and Ecosystem Information

1. What happened to the amount of carbon dioxide in the biodome over time?

2. Why is carbon dioxide important for plants in the biodome?

3. How might decreasing carbon dioxide levels affect animals in the ecosystem?

Biodome File 4: Biodome Water System Diagram

1. Describe how water moves through the biodome system.

2. Why is recycling water important in a closed ecosystem?

3. What problems could occur if the biodome's water cycle stopped working properly?

Biodome File 5: Goatherd's Journal — Year 1

1. What evidence suggests the goats were healthy during the first year?

2. What did the biodome team do with dead matter and waste?

3. Why might burying dead matter affect the ecosystem over time?

Biodome File 5: Goatherd's Journal — Year 2

1. What changes occurred in the goat population during Year 2?

2. What evidence suggests the ecosystem still seemed healthy during most of Year 2?

3. Why is the death of even one goat important in a closed ecosystem?

Biodome File 5: Goatherd's Journal — Year 3

1. What problems began to appear during Year 3?

2. How did the alfalfa shortage affect the goats?

3. Why were the goats becoming thinner even though they did not have diseases?

Biodome File 5: Goatherd’s Journal — Year 4

1. What evidence suggests the biodome ecosystem was collapsing by Year 4?

2. Why was the lack of baby goats an important warning sign?

3. Based on the journal, what do you think was the main cause of the goats’ declining health?

Longer Reflection and Analysis Questions

1. Explain how changes in one part of the biodome ecosystem affected other parts of the ecosystem over time.

[illegible]

2. Describe the chain of events that may have led to the biodome collapse. Use evidence from multiple biodome files in your response.

[illegible]

3. Why is recycling matter important in a closed ecosystem like the biodome?

What evidence from the readings supports your answer?

4. Imagine you were one of the student ecologists helping the Econauts. What recommendations would you give to prevent the biodome from collapsing again? Explain your reasoning.



Welcome to
MATH

Name _____

Incoming 8th Grade Summer Math Packet

Dear Students and Parents,

This summer, we encourage you to continue to practice your mathematics at home. Practicing math skills over the summer can keep the brain's pathways for computation and mathematical vocabulary strong. Please make sure to follow the suggested directions for the best outcomes:

1. Do NOT use a calculator (unless specified). Take time to “grow your brain” and practice your math facts.
2. Show all work! An important aspect of mathematics is being able to communicate the process you use to arrive at your answer. It also provides an opportunity to review your thinking when making corrections to your work.
3. Be neat and organized! Part of success in math is being able to organize your work and keep track of your calculations and steps. Use all the paper you need to neatly show your work.
4. Circle or Box your final answers (another organizational strategy).
5. Do not rush! Take advantage of the summer pace and see if you digest more of what you're working on.
6. If you are stuck on a problem, read the example problems provided at the beginning of each exercise. If you are still stuck, check out one of the math websites listed below.
7. Check your work! If you got an incorrect answer, go back and try to figure out your error. Correcting your work and figuring out where you went wrong is monumental in the learning process.

Resources: For help with a topic: www.purplemath.com and select 7th grade on the left hand column, then select the topic from the top.

For Math Fact Practice: <https://ai.varsitytutors.com/aplusmath> and select flash cards. You can switch the operation and difficulty each time.

Another resource for help relearning a topic: www.khanacademy.org

Math Learning Games: www.funbrain.com

Another suggestion: If you or your child has a cellular phone, there are free math apps that you can play on and build math skills. There are many out there. Try one out!

TOPIC ONE: ADDING AND SUBTRACTING INTEGERS

Instructions: Find the Sum or Difference **without using a calculator**. Calculators will not be allowed on the quiz in the fall. If you do work on a separate sheet of paper, please staple that sheet to this worksheet.

1. $9 + -4$

7. $12 + -4$

2. $-1 + -6$

8. $-4 + 6 + 5$

3. $2 + -6$

9. $-45 + -67$

4. $-14 + -7$

10. $-13 + -4$

5. $5 + -10$

11. $14 + -62$

6. $13 + -12$

12. $15 + -8$

13. $7 + -7$

14. $9 - (-1)$

15. $5 - 8$

16. $6 - 9$

17. $-16 - (-2)$

18. $27 - 52$

19. $19 - (-12)$

20. $-10 - (-8)$

21. $11 - (-25)$

22. $-28 - 28$

23. $-28 - (-28)$

24. $-36 - 29$

25. $10 - (-14)$

TOPIC TWO: MULTIPLYING AND DIVIDING INTEGERS

Review

To multiply two integers, multiply their absolute values.

- If the signs are the same, the product is positive.
- If the signs are different, the product is negative.

To divide two integers, find the quotient of their absolute values.

- If the signs are the same, the quotient is positive.
- If the signs are different, the quotient is negative.

Instructions: Find the product or quotient **without using a calculator**. Calculators will not be allowed on the quiz in the fall. If you do work on a separate sheet of paper, please staple that sheet to this worksheet.

1. $-3(6)$

7. $-6(-9)$

2. $-50 \div 5$

8. $-32 \div 4$

3. $-7(10)$

9. $-18 \div 6$

4. $6(-7)$

10. $-5(12)$

5. $-3(-4)$

11. $-45 \div 9$

6. $-12 \div (-3)$

12. $3(-15)$

13. $-64 \div 8$

20. $-14 \div 7$

14. $-54 \div (-9)$

21. $-72 (-3)$

15. $-2 (-8)$

22. $-7 \div 14$ (Different problem than #20)

16. $-28 \div (-7)$

23. $-6(\frac{1}{2}) (-30)$

17. $-600 \div 30$

24. $-6 \div \frac{1}{3}$

18. $-8 (-80)$

25. $-1.5 (6)$

19. $-0.4 \div (-1)$

TOPIC THREE: ORDER OF OPERATIONS

When you have a number sentence that contains several operations, you use the order of operations to know which operation must be completed first.

1. Do all operations within parentheses first. This is called "clearing parentheses."
2. Perform all operations that involve exponents next.
3. Do multiplication and division **in the order that they appear from left to right**. There is no rule that multiplication comes **before** division. These two are on the same level. You have to make sure you work from left to right.
4. Do addition and subtraction **in the order that they appear from left to right**. Again, these two are on the same level. We don't add before we subtract; we do whichever of the two comes first, when reading from left to right. You have to make sure to work from left to right.

Example: $8 \div (3 + -5)^2(3 - 4 + 6)$: $8 \div (-2)^2(7) = 8 \div (4)(7) = 2(7) = 14$

1. $8 + 3^4$

4. $5^3 + 56 \div 7$

2. $800 \div 2^4 + 50$

5. $(26 - 17)^2 + 35$

3. $6(7^2 - 2^3)$

6. $80 \div (20 \div 10)^2$

7. $(5) 3^2 - 75$

13. $(14 + 5^2) 7^0$

8. $-15 + 4^3$

14. $23 + (9 - 14)^2$

9. $-9^2 - (-30)$

15. $(14 - 16)^2 + 10$

10. $3^4 + (40) - (5 - 3)^2$

16. $-4(2 - 8)^2$

11. $12 - 30(8)^2$

17. $(-7 - 8)^2(20)$

12. $6^2 - 50(3^2)$

18. $-15 \div 3 * (-12)$

TOPIC FOUR: SOLVING ONE STEP EQUATIONS

There are five types of “one-step equations” that we learned to solve. In all cases, the goal is to “undo” whatever operation has been performed on the variable in order to get it alone. To do that, we just undo whatever has been done to the variable.

Addition Equations: To solve, we just subtract from both sides what was added to x.

$$\begin{array}{r} x + 7 = -12 \\ - 7 \quad - 7 \end{array}$$

Subtraction Equations: To solve, we just add to both sides what was subtracted from x.

$$\begin{array}{r} x - 8 = 10 \\ + 8 \quad + 8 \end{array}$$

Multiplication Equations: To solve, we just divide both sides by what was multiplied by x.

$$\begin{array}{r} 5x = -25 \\ 5 \quad 5 \end{array}$$

Division Equations: To solve, we just multiply both sides by what x was divided by.

$$3\left(\frac{x}{3}\right) = (-7)3$$

Fractional Equations: To solve, we just multiply both sides by the reciprocal of the fraction that multiplies x.

$$\frac{3}{2}\left(\frac{2}{3}x\right) = 16\left(\frac{3}{2}\right)$$

Instructions: Solve each equation, by undoing what has been done to the variable.

1. $b + 15 = 8$

3. $\frac{d}{5} = -10$

2. $\frac{2}{7}d = -10$

4. $-4b = 76$

5. $z - 20 = 32$

13. $\frac{6}{5}x = 18$

6. $\frac{3}{7}x = 21$

14. $22 = p - 14$

7. $-2 = 0.5 + c$

15. $6p = -30$

8. $7w = 280$

16. $x + 20 = 8$

9. $-\frac{4}{9}x = 16$

17. $p \div 8 = -9$

10. $i - 9 = -19$

18. $-8 = 12 + q$

11. $-7 + h = 1$

19. $-49 = -7x$

20. $25 + y = -10$

TOPIC FIVE: SOLVING TWO-STEP EQUATIONS

The goal of solving two-step equations is simple: get the variable alone on one side of the equal sign. To do this, we first undo addition or subtraction, and then we undo multiplication or division.

Solve each equation. Then check your solution.

Example:

$$10 = 3x + 1$$

$$-1 \quad -1 \text{ (Subtract 1 from both sides)} \Rightarrow$$

$$9 = 3x \text{ (To get } x \text{ alone, divide both sides by 3)}$$

$$\frac{9}{3} = \frac{3x}{3}$$

$$3 = x$$

To check the solution, substitute it into the original equation for x : If we are correct and $x = 3$, then $3x + 1$ must equal

$$3(3) + 1 = 9 + 1 = 10$$

Because our original equation was $3x + 1 = 10$, and when we checked our answer, we got 10, we know we solved the problem correctly.

Instructions: Solve each equation. Then check your solution by plugging it into the original equation in place of the variable. Because there are two steps to each problem, I have only given you 10 problems to complete.

1. $-2 = 10d - 3$

3. $-8 + 2g = 4$

2. $7 = -2 + 3b$

4. $-3 - 5n = -1$

5. $2x + 8 = -6$

6. $\frac{h}{-3} - 6 = 8$

7. $\frac{k}{5} + 11 = -4$

8. $7 + \frac{c}{-6} = -3$

9. $-1 = -4 + \frac{e}{8}$

10. $-12 = \frac{m}{4} - 9$

TOPIC EIGHT: OPERATIONS ON FRACTIONS

This is a topic I expect everyone to master by the beginning of eighth grade! Use have to become an expert on these operations. **You will not be allowed to use a calculator!** Please keep that in mind while completing this worksheet.

1. $\frac{6}{7} - \frac{1}{2}$

$$\frac{15}{4} + \frac{9}{5}$$

2. $\frac{2}{5} - \frac{1}{3}$

5. $5\frac{1}{10} - 2\frac{1}{3}$

3. $\frac{3}{5} \times \frac{5}{6}$

6. $1\frac{1}{4} \times 1\frac{1}{3}$

4. $\frac{2}{3} \div \frac{4}{7}$

7. $\left(4\frac{1}{3} - 2\frac{3}{4}\right) \times 1\frac{1}{2}$

Simplify the following fractions. **This is a skill at which you should become an expert. Your goal is to get yourself to a point (by September) where these problems come naturally for you.**

1. $\frac{12}{45}$

2. $\frac{20}{15}$

3. $\frac{18}{51}$

4. $\frac{42}{64}$

5. $\frac{25}{80}$

6. $\frac{60}{24}$

7. $\frac{15}{75}$

8. $\frac{32}{12}$

TOPIC NINE: PROPORTIONS

We have learned two ways of solving proportions: cross-multiplication and finding scale factor. Please try to complete these BOTH ways. Again, if you need help, check out Khan Academy or Google it!

Scale factor method:

$$1) \frac{10}{8} = \frac{n}{10}$$

$$3) \frac{9}{6} = \frac{x}{10}$$

$$5) \frac{4}{3} = \frac{8}{x}$$

Cross-multiplication method:

$$2) \frac{7}{5} = \frac{x}{3}$$

$$4) \frac{7}{n} = \frac{8}{7}$$

$$6) \frac{7}{b+5} = \frac{10}{5}$$

Order of Operations

Simplify each expression using PEMDAS!

1) $2 * 6 \div 4 + 7 - 8 * 3 + 77 \div 11$

4) $13 + 2x - 5 - 8x + 7 * (4x + 1)$

2) $72 \div 12 + 2^2 - 5 * 2 + 3 + 2 * (6 - 5)$

5) $-5x - 8 + (8 \div 2) + 7 * 6$

3) $7 * (12 - 5) + 9 \div (-3) + 7 * (-2)$

6) $3x - 6 + 4 * 8 - 3x + 2y - 90 \div 5$

Absolute Values & Negative Integer Operations

Simplify each statement as much as possible.

1. $|-4|$

2. $-|-5|$

3. $(-3)^2$

4. -5^3

5. $-4 * 5$

6. $-7 + 3$

7. $-8 * -7$

8. $-28 \div -7$

9. $-42 + 27$

10. $-22 - (-8)$

11. $\frac{-42}{7}$

12. $37 - 83$

13. $-42 \div 2 + (7 * 3) + 8 - (-5) - 4 * 2$

14. $|-2| + 8^2 - (-3)^2 + 7 * 2 - 22 \div 2$

15. $|-4^3| - 8 * 7 + (-(-(-2)) + (-\frac{48}{6}) + (-3) * (-2)$

25 x 25 MULTIPLICATION CHART

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	69	72	75
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84	88	92	96	100
5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125
6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126	132	138	144	150
7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192	200
9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144	153	162	171	180	189	198	207	216	225
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250
11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176	187	198	209	220	231	242	253	264	275
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300
13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208	221	234	247	260	273	286	299	312	325
14	28	42	56	70	84	98	112	126	140	154	168	182	196	210	224	238	252	266	280	294	308	322	336	350
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300	315	330	345	360	375
16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320	336	352	368	384	400
17	34	51	68	85	102	119	136	153	170	187	204	221	238	255	272	289	306	323	340	357	374	391	408	425
18	36	54	72	90	108	126	144	162	180	198	216	234	252	270	288	306	324	342	360	378	396	414	432	450
19	38	57	76	95	114	133	152	171	190	209	228	247	266	285	304	323	342	361	380	399	418	437	456	475
20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500
21	42	63	84	105	126	147	168	189	210	231	252	273	294	315	336	357	378	399	420	441	462	483	504	525
22	44	66	88	110	132	154	176	198	220	242	264	286	308	330	352	374	396	418	440	462	484	506	528	550
23	46	69	92	115	138	161	184	207	230	253	276	299	322	345	368	391	414	437	460	483	506	529	552	575
24	48	72	96	120	144	168	192	216	240	264	288	312	336	360	384	408	432	456	480	504	528	552	576	600
25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600	625

M + A + T + H = *Dave*

INVISIBLE MATH



There is a positive sign to the left of every non-negative number.

$$3 = +3$$

Every whole number has a denominator of 1.

$$5 = \frac{5}{1}$$

There is a decimal point at the end of every whole number.

$$7 = 7.0$$

There is a power of 1 for every whole number.

$$9 = 9^1$$

Any number to the power of zero equals one.

$$9^0 = 1$$

Every variable has a coefficient of 1.

$$x = 1x$$

Every negative variable has a coefficient of -1.

$$-x = -1x$$

There is a multiplication symbol between a coefficient and a variable.

$$6x = 6 \cdot x$$

Ways to write multiplication:

$$a \times b$$

$$a \cdot b$$

$$ab$$

$$a(b)$$

Ways to write division:

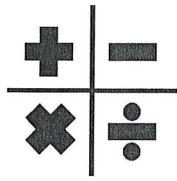
$$a \div b$$

$$a / b$$

$$\frac{a}{b}$$

$$b \overline{)a}$$

ORDER *OF* OPERATIONS



Operations are things like adding, subtracting, multiplying, and dividing.

The **order of operations** is a rule that tells us what order to do these operations. This helps make sure everyone gets the same answer.

1 Parentheses and Grouping Symbols

$$(5 + 2) \quad [9 - 4] \quad \frac{8 - 4}{2}$$

2 Exponents and Roots

$$5^2 \quad 2^3 \quad \sqrt{4} \quad \sqrt[3]{27}$$

3 Multiplication and Division

$$5 \times 4 \quad 3(8) \quad 8 \div 4 \quad \frac{12}{3}$$

$$6 \cdot 2 \quad 9b \quad 15 / 5$$

4 Addition and Subtraction

$$2 + 9 \quad 8 - 1$$

EXAMPLE

$$3 \times 5^2 - (6 + 2)$$

$$3 \times \underline{5^2} - 8$$

$$\underline{3 \times 25} - 8$$

$$\underline{75 - 8}$$

$$67$$

- 1 Complete the operation in parentheses.
- 2 Evaluate the **exponent**.
- 3 Multiply.
- 4 Subtract.

7th Grade Math

Number Sense Cheat Sheet

Integers

Adding

$$\oplus + \oplus = \oplus$$

$$\ominus + \ominus = \ominus$$

$$\oplus + \ominus = \oplus$$

$$\oplus + \ominus = \ominus$$

Greater Abs. Value

Operations on
Integers

Integers

Subtracting

$$\oplus - \oplus = \oplus + \ominus$$

$$\oplus - \ominus = \oplus + \oplus$$

$$\ominus - \ominus = \ominus + \oplus$$

$$\ominus - \oplus = \ominus + \ominus$$

$$\ominus + \ominus = \ominus$$

Fractions

Multiplying

Multiply
across!

Example:

$$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$$

If possible
reduce!

Multiplying & Dividing

$$\oplus \times \ominus = \ominus$$

$$\ominus \times \ominus = \oplus$$

$$\ominus \times \oplus = \ominus$$

$$\oplus \times \oplus = \oplus$$

Fractions

Adding & Subtracting

Need common
denominators!

Example:

$$\frac{a}{b} + \frac{c}{d} = \frac{d}{d} \cdot \frac{a}{b} + \frac{c}{d} \cdot \frac{b}{b} = \frac{ad}{bd} + \frac{bc}{bd} = \frac{ad+bc}{bd}$$

Dividing

Change to
multiplication &
take reciprocal of
second fraction!

Example:

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$$

Reduce!

Decimals

Adding &

Subtracting

Line up the
decimals!

Example:

0.005 + 1.3 becomes

$$\begin{array}{r} 0.005 \\ + 1.300 \\ \hline 1.305 \end{array}$$

Operations
on Decimals

Multiplying

Multiply as
normal & look
at signs!

Dividing

Divisor needs to be a
whole number!

Example:

$$55 \div 5.5 \text{ becomes } 550 \div 55$$

Integers

Fractions

Decimals

8th Grade Math

Number Sense Cheat Sheet

Rationals

A number that can be written as a ratio.

Examples:

- Repeating and Terminating Decimals
- Perfect Squares
- Integers
- Fractions

Square Roots

A number that when multiplied by itself two times will equal a given number.

$$\sqrt{a^2} = \sqrt{a \cdot a} = a$$

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

Scientific Notation

A way to write really small or really large numbers.

Written as $N \times 10^n$ where N is a number between 1 and 10.

Example: 3.4×10^6

Rationals vs Irrationals

Exponent Properties

Product of Powers

$$a^m \cdot a^n = a^{m+n}$$

Power of a Power

$$(a^m)^n = a^{mn}$$

Power of a Product

$$(ab)^m = a^m b^m$$

Power of a Quotient

$$\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$$

Quotient of Powers

$$\frac{a^m}{a^n} = a^{m-n}$$

Zero Exponents

$$a^0 = 1$$

Negative Exponents

$$a^{-n} = \frac{1}{a^n}$$

Scientific Notation

Irrationals

A real number that cannot be expressed as a ratio of integers.

Examples:

- Non-repeating and non-terminating decimals
- Non-perfect squares

Cube Roots

A number that when multiplied by itself three times will equal a given number.

$$\sqrt[3]{a^3} = \sqrt[3]{a \cdot a \cdot a} = a$$

$$\sqrt[3]{\frac{a}{b}} = \frac{\sqrt[3]{a}}{\sqrt[3]{b}}$$

Scientific Notation

If exponent is positive, move decimal to the right.
Ex: $4.56 \times 10^3 = 4560$

If exponent is negative, move decimal to the left.
Ex: $5.6 \times 10^{-2} = 0.056$