

# ROCK TUMBLER

## INSTRUCTIONS & LEARNING GUIDE



Need Any Assistance? We're Always Here to Help:

[support@konestone.com](mailto:support@konestone.com)

**WARNING: ALWAYS KEEP HAIR AWAY!**

# INSTRUCTIONS

## **CAUTION - ELECTRICALLY OPERATED PRODUCT**

**DANGER:** TO PREVENT ELECTRIC SHOCK, DO NOT IMMERSE IN WATER - WIPE CLEAN WITH DAMP CLOTH.

## **CAUTION: ELECTRICALLY OPERATED TOY.**

- NOT RECOMMENDED FOR CHILDREN UNDER 3 YEARS OF AGE.

AS WITH ALL ELECTRICAL PRODUCTS, PRECAUTION SHOULD BE OBSERVED DURING HANDLING AND USE TO PREVENT ELECTRICAL SHOCK.

- AS WITH ALL ELECTRICAL PRODUCTS, ADULT SUPERVISION IS RECOMMENDED DURING USE

- THE TOY SHOULD PERIODICALLY BE EXAMINED FOR POTENTIALLY UNSAFE CONDITIONS

SUCH AS: DAMAGED CORD, PLUG, HOUSING OR PARTS. IN THE EVENT THAT SUCH DAMAGE IS FOUND, THE TOY SHOULD NOT BE USED UNTIL PROPERLY REPAIRED.

- CONTAINS SMALL PARTS THAT COULD BE SWALLOWED. KEEP GRIT, STONES AND JEWELRY FINDINGS AWAY FROM YOUNG CHILDREN.

**CAUTION:** ABRASIVE GRITS AND POLISH AND ROCK DUST CAN CAUSE EYE IRRITATION.

**PRECAUTION:** AVOID CONTACT WITH EYES.

**FIRST AID:** IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION IMMEDIATELY IF IRRITATION OR BLURRED VISION OCCURS.

**RATINGS:** 110-120V AC ONLY 0.15 AMPS 10 WATTS 60HZ

## **IMPORTANT INFORMATION:**

- Read all instructions before using and keep for future reference.
- For added safety, this product is equipped with a polarized AC adapter.
- Use only the ac adaptor provided with your Rock Tumbler.
- Clean tumbler with a damp cloth - **NEVER IMMERSE IN WATER.**
- **NEVER POUR USED GRIT OR GRINDING POWDER DOWN HOUSEHOLD DRAINS.**
- For indoor use only. Do not use outdoors or in a moist environment.
- Maximum weight in barrel is **2.5lb**. Suggested weight is **2lb** per use.
- Do not overfill the barrel with water. Add water to cover the stones only.

## **GENERAL GUIDELINES**

1. Before plugging in this machine, make certain the electrical outlet is properly grounded and of the proper voltage. Also make certain that the machine switch is off and that your hands and the electrical connections are dry in order to avoid possible electrical shock.
2. Set up your tumbler on a firm, level surface preferably in an area where the noise of the rolling rocks will be less of a bother.
3. Fill your tumbler barrel about **2/3 full**. You need to allow room for the stones to roll around.

## TECHNICAL SPECIFICATIONS:

- Operating conditions: 14° - 140°F
- Operating humidity: 35-90%
- Max load: 2.5lb
- Voltage: 12V DC
- Power consumption: 12VA(Max)
- AC Adapter
  - Input: 120V AC 60Hz 6W
  - Output: 12V DC 500mA

## BEFORE YOU BEGIN

Confirm that all the following parts have been included with your kit. For concerns, including missing part inquiries, please contact:

[support@komestone.com](mailto:support@komestone.com).

### List Of Contents:

- Rock tumbler base
- Tumbling barrel
- 4 bags of grits (Don't reuse it!)
- 1lb gemstone rocks
- Ceramic tumbling media (for Cycle #1 and #2 only)
- AC Adapter
- Replacement tumbler belt
- Mesh strainer
- Flat-Head Screwdriver
- Jewelry fastenings
- User instructions

**NOTE:** The rough gemstones come packaged inside the tumbling barrel.

### Things to Check Before Tumbling Your Rocks:

- **Make sure all rocks are of similar hardness** - Softer rocks will get completely worn away and destroyed by harder rocks.
- **Discard any rocks with obvious fractures or cracks** - Break cracked rocks in two along their fractures if you want to include them in the batch. If a rock breaks mid-tumble the sharp edges will damage other rocks in the barrel.
- **Remove rocks with pores or cavities** - Small cavities on the surface of a rock will trap grit and bring larger sized grit to the next tumbling steps, resulting in a hazy and undesirable final product.
- **Use a good distribution of rock sizes** - Differently sized rocks tumble more smoothly and evenly, and result in more points of contact between the rocks and better grinding action. Use ceramic tumbling media as a substitute if you only have large rocks.



**WARNING: ALWAYS KEEP HAIR AWAY**

## HOW THE MACHINE WORKS:



- 1. On/Off:** Turn the tumbler on or off. This will reset all the settings as well.
- 2. Pause/Resume:** Pause and resume the tumbler without losing the timer or speed settings.
- 3. Timer Controls:** Increase or decrease the amount of days the tumbler should run until it turns off.
- 4. Speed Controls:** Increase or decrease the speed of the tumbler.
- 5. Timer Display:** Displays the amount of days left on the timer.
- 6. Speed Display:** Displays the tumbler speed.

### RPM for Each Speed

Speed 1: 560-580RPM

Speed 2: 710-730RPM

Speed 3: 860-880RPM

**“If there’s any problem with handling this Rock Tumbler, please feel free to contact us at: [support@komestone.com](mailto:support@komestone.com), or Text to 909 717 8024.”**

## SUGGESTED TUMBLING TIMES & SPEED

| Cycle #         | Grit #  | Time     | Speed |
|-----------------|---------|----------|-------|
| 1: Coarse Grind | Grit #1 | 4-6 days | 3     |

*The purpose of this first cycle of tumbling is to smooth out sharp points and edges. This cycle will take from 4 to 6 days, depending on the size and hardness of the stones. It is best to check the stones daily during this cycle.*

|                 |         |         |   |
|-----------------|---------|---------|---|
| 2: Medium Grind | Grit #2 | 6-8 day | 2 |
|-----------------|---------|---------|---|

*With a lower speed for finer results, smoothing out the rocks even more. It is important to inspect stones during this 6 to 8 day process.*

|               |         |         |   |
|---------------|---------|---------|---|
| 3: Pre-polish | Grit #3 | 6-8 day | 1 |
|---------------|---------|---------|---|

*On the slowest speed for the finest results. This cycle starts to polish the rocks.*

|           |         |         |   |
|-----------|---------|---------|---|
| 4: Polish | Grit #4 | 7-9 day | 1 |
|-----------|---------|---------|---|

*On the slowest speed for the finest results. This cycle adds a layer of polish. Don't forget, slow speed and long polishing times will generally get you the best results!*

## HOW TO USE

### Step 1: Open the Tumbling Barrel



1. Unscrew the **black knob** at the top of the barrel and remove it.



2. Pop off the **stainless steel housing**. If you have trouble, try the included Flat-Head Screwdriver – to pry it off.



3. Remove the **inner lid** from the barrel: You can try by squeezing the barrel to push out the lid or screw the black knob onto the lid and use that as a handle to pull out the lid easily.

## Step 2: Polish Stones

**CAUTION:** Grit can wreak havoc on plumbing, so never pour the used grit down any household drain. It is best to wash your gritty stones and barrel outside with a garden hose.

💡 If you don't have small pieces of rock to tumble, you can add **small ceramic media** to the tumbler barrel. Ceramic media are used as small-size "filler" in tumbling. These tiny cylinders will also act like roller bearings in the barrel and make your load tumble with a smooth action - that smooth action will improve the grinding in the barrel and keep your stones from being bruised.

### Cycle #1: Coarse Grind

This will round out the edges and polish the stones faster. Keep on running until the stones have lost their edges and feel smooth.



**1. Rinse the stones with water and fill the barrel with up to 1lb of stones.**

💡 **Don't Overload It!**

The action of the rocks crashing into each other will give you the best tumbling results. If the barrel is too full, the rocks can't move as freely and won't polish as well. For best results, fill your tumbler barrel about 1/2 to 2/3 full. Add the **ceramic tumbling media** to fill it up to the recommended fill level of 1/2 to 2/3 if you don't have enough stones or the stones are too big.

💡 If you overfill the tumbler, the built-in sensor will automatically protect the motor inside by turning the tumbler off. If this happens, you should turn off the machine by pressing the On/Off button, remove some of the rocks, and then turn it on again.



**2. Add Grit #1 to the tumbler barrel.**



**3. Fill with water until the water just covers the top of the rocks.**



4. Insert the **inner lid** back into the barrel in the sealed position (with the screw pointed outward). Make sure it is tightly sealed (Remove the black knob from the inner lid, if you attached it by step 3).



5. Put back the **stainless steel cover** on the top of the inner lid and reattach the **black knob** and tighten it. Make sure to tighten the best as you can to ensure the barrel does not leak any water.



6. Place the **tumbler barrel** onto the tumbler base, with the lid facing to the **right**.



7. Plug in the tumbler. Press the **On/Off** button, the tumbler will power on with an illuminated **1** in both the **DAYS** and **SPEED** indicators.

 Use the **Plus{+}** and **Minus{-}** buttons to select the desired number of **DAYS** and **SPEED** the tumbler will cycle for (see "Suggested Tumbling Times & Speed" on **page 4**).

 You can always pause the machine without losing the speed and timer settings by pressing the **Pause/Resume** button. Press it again to resume.

 **Inspecting the stones:** To stop the tumbler without resetting the timer, you can simply press the Pause/Resume button. Open the barrel and check your progress.

To **reset** the timer, push the ON /OFF button and select the number of days and speed.

## Cycle #2: Medium Grind



1. When the **Cycle #1** is over and you're satisfied with your results, pour the contents of the tumbler into the mesh strainer, and rinse the rocks and barrel with water, removing all grit. **Dry the barrel and machine with a towel.**

 **DO NOT ALLOW THE GRIT OR MUD TO GO DOWN THE DRAIN** - it can destroy the pipes! Make sure to wash your stones and barrel outside instead of in your bathroom or kitchen.

2. Refill the barrel with the stones. (If you don't have enough stones or the stones are too big, add some of the Ceramic tumbling media.)

3. Add **Grit #2** to the tumbler barrel.

4. Repeat steps 3-7 in Cycle #1.

 **Inspecting the stones:** At this point in the tumbling process, a dry stone should have a smooth frosted surface. Inspect the stones, looking for any that are cracked or broken. If found, they are discarded or saved for the next time you run Cycle #1.

## Cycle #3: Pre-polish

It is now time for the polishing process.

1. Pour the contents of the barrel through a **strainer** and rinse the stones. **Be sure not to pour any of the grit down household drains.**

2. Wash the stones and barrel thoroughly with soap to remove all traces of grit. Use scrub brush or an old toothbrush if necessary.

3. Place the stones back into the barrel and add water to cover, and tumble for **2 hours**. This will remove any remaining pieces of grit that might scratch your polished stones.

4. Rinse stones and barrel again.

5. Refill barrel with stones and add **Grit #3**, and add enough water to cover the stones

6. Be sure the barrel and tumbler are clean and dry.

7. Tumble for at least 6-8 days.

## Cycle #4: Polish

It is now time for the final polishing process, which will add a high luster to your stones. Then they will be ready to display or to mount into the jewelry finding.

1. Pour the contents of the barrel through a strainer and rinse the stones. **Be sure not to pour any of the grit down household drains.**

2. Wash the stones and barrel thoroughly with soap to remove all traces of grit. Use scrub brush or an old toothbrush if necessary.
3. Place the stones back into the barrel and add water to cover, and tumble for **2 hours**. This will remove any remaining pieces of grit that might scratch your polished stones.
4. Rinse stones and barrel again.
5. Refill barrel with stones and add **Grit #4**, and add enough water to cover the stones.
6. Be sure the barrel and tumbler are clean and dry.
7. Tumble for at least 7-9 days.
8. When stones are completely polished, they will look shiny when dry.

*Experiment with different types of stones under different types of tumbling conditions, you may get some surprising results! Stones of the same type tumbled together will produce the most highly polished look.*

## Next Steps

- **Use mineral oil for extra shine!** If you want your finished stones to be really shiny, coat and polish the stones with mineral oil.
- You can use the included **jewelry hardware** to make a necklace, ring, keychain, and a pair of clip on earring or pins with your polished stones.
- To make a keychain or necklace, simply insert the stone into the keychain / necklace cages, without using glue, by forcing it into the cage.
- To make a ring or earrings, you'll need to **glue the stone** by using a hot blue gun or an all-purpose adhesive sealant. Please have an adult help you if you are using glue!

## Be Patient

It takes a lot of time to have the best results. You may be tempting to speed up the process by using shortcuts. This will only affect your results negatively. To get the best-tumbled stones, be patient and do everything one step at a time.

## Keeping Records

It is easy to forget what day you started the tumbler or what type of grit was used - especially if you are running multiple tumblers. Keeping records will keep you on track and provide a history that will help you learn. You can record material tumbled, start date, grit # used, media used, finishing date and duration, along with any comments or observations about the results.

*To help you with your record keeping, we have prepared a tumbling log at the end of this learning book.*

## Helpful Tips For Perfectly Polished Rocks

- **Do not overload your tumbler!** This is a leading cause of belt breakage and motor burn-out. When in doubt, weigh your barrel. A barrel for a **2.5-lb** motor

should not exceed a weight of **4.5 pounds** when charged with rocks, grit, and water.

- **Resist the temptation to tumble rocks with cracks or pits.** Grit will get into these pits and contaminate subsequent steps, ruining the polish of the entire load. No amount of scrubbing with a toothbrush will remove all of the grit inside a pit!

- **Use a balanced load** that includes both large and small rocks. This will improve the tumbling action.

- **Make sure all rocks in a load are of the same approximate hardness.**

Otherwise, the softer stones will be worn away during the polishing process. An exception to this is when you are purposely using softer stones to fill/cushion a load.

- **Don't wash grit down the drain!** It will create a clog that is impervious to drain cleaner. Rinse the grit steps outside using a garden hose. Another option is to rinse the grit into a bucket, for later disposal somewhere other than your plumbing.

- **Don't reuse grit.** Silicon carbide loses its sharp edges after about a week's tumbling time and becomes useless for grinding.

- **You can add baking soda, Alka-Seltzer, or a Tums to a load to prevent gas build-up.**

- For smooth river rocks or for any softer stones (e.g. sodalite, fluorite, apatite), you may omit the first coarse grit step.

- For softer stones (especially obsidian or apache tears), you need to slow the tumbling action and prevent the stones from impacting each other during polishing. Some people have success adding corn syrup or sugar (twice as much as the amount of prepolysh and polishing agent) to thicken the slurry. Another option is to polish the stones dry (as in no water) with cerium oxide and oatmeal.

- **Always wash a few "test" stones before changing grit.** The purpose of the roughest grit #1 is to completely round all of the edges. Whenever you finish a grit cycle, always grab a few test stones and rinse them off before you dump out all of the grit and water. Carefully inspect these test rocks to determine if you think they're smooth enough. If you don't think they're finished, simply put them back in the barrel and run the batch for more time. Repeat this process with each grit. Each grit will get you a smoother and smoother polish. Generally speaking, longer is always better.

- **Mind the Noise:** Tumbling machines can be quite noisy. Because of this, it is recommended that you keep it in the basement so that you don't disturb your neighbors or even your partner who may shut it down before the process is completed.

- **Maintain your Tumbling Machine:** **1)** Always keep the outside of your barrel clean. **2)** Apply a very small amount of lubricating oil to the bearings every 30 days of operation. **3)** Make sure the drive belt has the proper level of tension – not too tight but not too loose.

Like anything else, the more you take care of your rock tumbler, the longer it will last.

## Things To Watch Out For:

- **Edges of stones don't polish but faces do.** Make sure to use rocks of a similar hardness. This can happen when mixing quartz in with agate. Also, you may need more cushioning. Add pellets as necessary and sugar to thicken your slurry.
- **I did everything right but I just got a so-so polish.** Hazy polish can be caused by grit contamination. Make sure to thoroughly wash rocks and barrel each grit stage. If your stones have pits, grit can get trapped. Remove rocks with pits or clean them out well. Also consider running a pre-polish stage. This is helpful on softer stones which are harder to polish.
- **The barrel slips!** A slipping barrel is caused by oil and grime on the rollers or barrel. Lightly sand the outside of the barrel and shafts with 100 grit sandpaper.
- **Barrel bulges and looks ready to explode!** Gas buildup in the barrel is common and usually happens during the first few days of the rough grind. Add a teaspoon or two of baking soda in the barrel when you load it to prevent gas buildup. It is a good idea to keep an eye on your tumbler for the first 4 hours and burp it as needed. Gas is caused by reacting organic compounds on the rocks.
- **Barrel leaks or lid came off.** A leaky tumbler means you didn't seal it up all the way. Clean the lid and barrel edges with a sponge before putting on the lid. A little water helps too. If the tumbler lid came completely off, it means that you probably over tightened the knurled nut. It should be hand tight, just a little snug.

## FREQUENTLY ASKED QUESTIONS

### Q: What size rocks should be used in a tumbler?

**A:** We suggest you put rocks mixtures of anymore between 1 to 1.25 inches, the maximum size of the stone should not exceed 1.5 inches. Moreover, we do not recommend tumbling any medium that is less than 1/4" in thickness/length.

There are two basic rules that you should follow about the sizes of rocks that you load into your rock tumbler:

- 1) Load the barrel with a mixture of rock sizes.
- 2) Tumble rocks no larger than about 1/2 the barrel diameter.

The first rule is one that everyone should follow. The second is for people who want to make "monster" tumblers.

### Q: How much grit to use?

**A:** We recommend approximately 2 tablespoons of grit per pound of rocks. A rule of thumb is that, if you see grit at the bottom of your barrel after one week, you are using too much grit.

### Q: Can I reuse the grit?

NO. Because grit gradually breaks down as you're tumbling, you cannot reuse it. We recommend that you thoroughly wash your rocks before putting them in polish – you also need to wash the barrel. Failing to do so will hinder your final polish results.

**Q: What is the ceramic tumbling media used for? How much do I use?**

**A:** After you have your rocks and grit in the barrel, use ceramic tumbling media to fill it up to the recommended fill level of 1/2 to 2/3. Then add your water to cover all of it. Even though the ceramic is hard, it will help minimize the brute force of rocks smashing into each other if your barrel is too empty. They will protect your stones and also quiet the tumbling. *The ceramic tumbling media is usually used in Cycle #1 and #2.*

**Q: Can I reuse the ceramic tumbling media?**

**A:** Yes. The ceramic cylinders can be reused if they are thoroughly washed between stages, there is no need to throw it away after a couple of uses. When the media lose its abrasive qualities, you need to get a new batch of tumbling media.

**Q: What speed and time should I select for each cycle?**

**A:** Please refer to the page 4 for our "Suggested Tumbling Times & Speed"

**Q: My rock tumbler is displaying an "E" - what does this mean?**

**A:** An "E" means that the barrel is overloaded. Simply turn off the machine by pressing the On/Off button, remove some of the rocks and/or water from the barrel, and turn on the machine again.

Sometimes the machine will display an "E" if the barrel is not properly placed on the machine. Adjust the barrel on the machine and restart the machine.

**Q: Can I use the Rock Tumbler to make "sea glass"?**

**A:** It is possible to use the tumbler to turn regular glass into sea glass as you would find at the beach. Before doing so, please research the appropriate tumbling times and the correct grit to use.

**Q: Can I buy spare parts separately? Where can I get more stones and grit?**

**A:** Yes. You can find refill packs containing stones, grit, and jewelry fastenings at our Amazon store. If you need a replacement part, please contact us at [support@komestone.com](mailto:support@komestone.com) and we'll be happy to assist you.

**Q: Not getting a good polish?**

**A:** Hard stones are far easier to polish than soft ones and you will find as you get more familiar with lapidary work, that the secret to success is the careful selection of stones. Try to use well shaped stones that are worth polishing, of roughly the same hardness, size and shape. Try to choose the best stones you can - you will then be happy with the results.

**Q: Stones reducing in size too quickly?**

**A:** If you find that the stones are drastically reducing in size in the first stages of the tumbling process this may suggest that the stones are too soft and may not polish at all. Alternatively you may have tumbled the stones on the coarse grit for too long. If the stones reduce too quickly there may not be any significant tumbling action, there needs to be enough volume of stones in the barrel to sustain the tumbling / polishing action.

**Q: Harsh, banging noise while tumbling?**

**A:** When the machine is tumbling correctly it makes a sound rather similar to pebbles being rolled gently from hand to hand. If you hear a harsh, banging noise from the stone it suggests that either you have insufficient in the machine or that the mixture needs thickening (some people use a wallpaper paste like Polycel to thicken the water a little so the consistency is more like thin cream). It is especially important at the polishing stage that the stones are not banging hard against each other.

**Q: Periodically relieve the pressure that may build up in the barrels?**

**A:** During any tumbling process it is possible that gas may be generated in the barrel, it is advisable to lift the side of one of the lids every day or so that the pressure is released. It is remotely possible that pressure will build up in barrel so as a precaution release the pressure to avoid a mishap.

**Q: Barrel does not rotate?**

**A:** Check that the barrel is not under-loaded or overloaded. Dry rollers and barrel thoroughly, ensure there is no oil on the rollers or barrel. If the rollers appear glazed, rub lightly with sandpaper.

**Q: If the belt slips?**

**A:** Remove the belt, wash and de-grease it, then dry it thoroughly and replace it. Replace the belt if it looks worn. Do not attempt to tighten it as they are precisely tensioned before leaving the manufacturer.

**Q: If the barrel leaks?**

**A:** This is most likely because you have put the lids on incorrectly. Follow the instructions for opening and closing the barrels on the first page of this leaflet.

**Q: What happens if the tumbler belt breaks?**

**A:** There're TWO replacement belts included in your kit. Simply remove the broken tumbler belt and replace it with the new one.

**Q: My tumbler stops working, the screen is blinking?**

**A:** Please try completely unplugging it for about an hour and plug it back in. Also make sure you don't have too much water or rocks in the barrel.

**One final note:** *You can always experiment with adjusting the duration of your tumbling. Every rock material is different, and this is a fun hobby that encourages experimentation. Rock on!*



18-month limited warranty



Lifetime technical support



support@komestone.com



909 717 8024 (Text Only)

# LEARNING GUIDE

## ROCK TUMBLING

Rock tumbling is the hobby of collecting a wide range of rocks and turning them into beautiful gemstones you can use to make jewelry, crafts, decorations, or just to collect for fun. It's a pretty simple hobby that can be enjoyed at home by the entire family. All you need is a tumbler, some rocks, and a few other inexpensive materials.

Have you ever picked up a rock on the beach or a river bed that was perfectly rounded and smooth to the touch? That's a rock that has been "tumbled" by mother nature (water and sand) over the course of hundreds and even thousands of years.

Rock tumbling as a hobby is the exact same process. The thousand years it would take nature to tumble a rock can easily be done at home in a matter of weeks.

### What Can You Do With Polished Stones

People love rock tumbling for a number of reasons. While many folks just love collecting a wide range of rocks to hold and display proudly, there are lots of other reasons why people get into rock tumbling.

Here are some of the more common uses for tumbled rocks:

- Jewelry making
- Various craft making
- Vase/planter filler
- Holiday decorations
- Keychains
- Magnets
- Paperweights

## WHAT MAKES A ROCK GOOD FOR TUMBLING?

Most rocks you'll find in nature are not suitable to rock tumbling and it can be a big, disappointing waste of time to attempt using them. Additionally, if even one of the rocks you put into your tumbling batch doesn't meet acceptable standards it will almost certainly ruin the entire batch!

You can't tumble every type of rock. **There are four criteria that rocks should meet in order to be included in your next tumbling batch.** If all of your rocks (or 'rough') meet these standards then you'll have a much higher chance of success.

### Hardness Between 6 and 8

The best rocks for tumbling will rank between 6 and 8 on Mohs hardness scale (see below), with the vast majority of them being different varieties of quartz which has a hardness of 7. **It's important that all of your rough have a similar hardness,**

otherwise the softer rocks will get destroyed by the harder ones.

| Mohs Hardness Scale   |              |              |                         |
|-----------------------|--------------|--------------|-------------------------|
|                       | Mineral Name | Scale Number | Common Object           |
| Increasing Hardness ↑ | Diamond      | 10           |                         |
|                       | Corundum     | 9            | Masonry Drill Bit (8.5) |
|                       | Topaz        | 8            |                         |
|                       | Quartz       | 7            | Steel Nail (6.5)        |
|                       | Orthoclase   | 6            |                         |
|                       | Apatite      | 5            | Knife/Glass Plate (5.5) |
|                       | Fluorite     | 4            |                         |
|                       | Calcite      | 3            | Copper Penny (3.5)      |
|                       | Gypsum       | 2            |                         |
|                       | Talc         | 1            | Fingernail (2.5)        |

- Mohs Hardness Scale (National Park Service)

Differing hardness between rocks will also necessitate different tumbling times. Harder rocks will need to work longer (especially in Cycle #1) because they are more resistant to abrasion.

## Not Too Soft

While it is possible to tumble some softer rocks it isn't advisable for beginners, and if you do attempt it make sure that there are no harder rocks mixed in. The harder rocks will completely destroy the softer rocks and there will be nothing left of them. Any rocks below about a 6 hardness are also not likely to take a good polish. You will be able to round and smooth them pretty easily but they won't end up nice and shiny at the end.

## Not Too Hard

Very hard rocks such as corundum and ruby are also not great choices because they will require specialized grit and a lot of time in the tumbler. If you do attempt this make sure you're not using gem-quality samples! Since these hard rocks take so much more time in the tumbler we would recommend you purchase a vibratory tumbler which can easily cut tumbling time in half.

## Smooth Texture

A rock with rough, granular texture, as an example of what kind of rocks are not good for tumbling. The texture of a rock is critically important when it comes to rock tumbling. Any rock that has a grainy, gritty, or sandy texture should never be used as tumbling rough.

**Good tumbling rough will consist only of rocks with a smooth, non-granular texture.** When the rocks are broken the surfaces should be smooth to the touch.

You can probably tell if the texture is suitable just by looking at the rock and checking for any visible granularity. A good tumbling rock will be microcrystalline with no visible grains. Another good way to tell is to rub the rocks together and see if any small grains are produced. If not, then the texture is probably suitable.

If you attempt to tumble a rock with a gritty or granular texture then you're going to end up with bad results. The rock will disintegrate into little bits of grit which will destroy every other rock in the barrel. Those bits of grit will act just like the tumbling grit you add in each step, except they are the wrong size so they'll just scratch everything up and leave it looking dull.

## High Density

It's important not to add any porous rocks to your tumbling rough because those pores make for perfect little traps for tumbling grit. If you put these rocks with pores, voids, or pits into your batch of tumbling rocks you probably won't notice any problems in the first or second cycles, but you'll definitely run into problems in the pre-polish, polish, and burnishing stages.

The problem is that the pores trap grit from each step and carry it on to the next steps. If even a few pieces of larger grit make it into the polishing stage then you'll end up getting unsightly gouges in your otherwise nicely polished rocks. There is almost no amount of rinsing or cleaning you can do avoid this carryover of grit if your rock has a bunch of pores, so it's best just to avoid them entirely.

## Lack of Fractures

It's important to check over your tumbling rough for any rocks that have noticeable fractures. If you find any rocks that have visible cracks or fractures make sure to remove them from the batch. Or, even better, you can break those rocks up along the fractures and tumble the pieces.

**Tip: Break up any fractured rocks along their visible fractures before tumbling.**

It's important to check over your tumbling rough for any rocks that have noticeable fractures. If you find any rocks that have visible cracks or fractures make sure to remove them from the batch. Or, even better, you can break those rocks up along the fractures and tumble the pieces.

## Proper Size

Even if your rocks meet all the other criteria they need to be the right size. Ideally your tumbling rough will consist of rocks that are **between 1/2" and 1-1/2"** in size. If they're any bigger than that they are probably too large for most tumblers and won't get proper tumbling action, while anything smaller will probably just get ground up entirely over the course of the entire tumbling process.

It's also important to have a nice mix of rock sizes in your rough. The best rough will have a nice distribution of differently sized rocks. This distribution creates nicer tumbling action in the barrel and increases the number of contact surfaces between the rocks, making the tumbling more efficient.

## Best Rocks to Beginners

The characteristics and properties of certain rocks make for great beginner rocks to learn with to tumble. You will have a higher success rate than most other rocks. These rocks will almost always give you a fabulous polish when they are completed, as long as you follow standard tumbling directions.

The overall best rocks for tumbling beginners are:

- **Agates** - colorful, and pretty patterns, easily found, and cost varies widely
- **Jaspers** - usually bright colors, and can have interesting patterns, easily found
- **Chalcedony** - can have patterns, usually translucent, and is generally low cost
- **Flint** - very high polish, can have vibrant colors and patterns, can be easily found
- **Chert** - like flint can have nice colors, easily found.

However, not any old piece of agate or jasper will do when you're beginning. Starting out, rocks should be avoided if they are highly pitted throughout the entire body of the rock. Also, you want to be sure you remove any softer material that's surrounding the harder material. All your rocks should be of high silica content, which is noted by the conchoidal or bowl-shaped fracture pattern. This is especially important when looking for jasper as some jaspers are quartz-based while others are chalcedony-based. Size doesn't matter when you're obtaining the rocks.

## Rocks for Intermediate and Advanced Users

Once you've gotten a handle on tumbling beginner stage rocks and think you're ready to try something harder; you can get some of these more Intermediate user rocks:

- **Quartz** - Easily found, has various color array, can contain ore, usually doesn't cost much
- **Quartz Jasper** - easily found, has various color patterns with quartz lines throughout
- **Obsidian** - varying price range, easy to make smaller as it's like glass, has multiple colors
- **Feldspars** - has a range of colors, Labradorite and moonstone being most valued and fun to tumble
- **Serpentine** - green stone that is soft and rounds well with metallic specs in it, usually inexpensive
- **Sodalite** - blue rock, rounds well quickly

Intermediate user rocks have a consistent hardness but are slightly more challenging to tumble and get a nice polish afterward. These rocks need to be separated by type for final polish; otherwise, they will not get a nice polish.

**“For any issue with the kit, please contact us at:  
support@komestone.com, or Text to 909 717 8024.”**

## Which Stones Are Included In Your Kit?

There are some really beautiful stones included with this Rock Tumbler, showing off many vivid colors. Here's a bit of information about each type:

### Rose Quartz

Rose quartz is a unique variety of quartz that has a distinct pink color. No coincidentally, this is one of my daughter's favorite types of rock to tumble! The pink color is a result of microcrystalline inclusions of the mineral dumortierite. Rose quartz is often translucent to transparent, making the finished tumbling results a very pretty sight to see.



### Amethyst



Another variety of quartz, amethyst is an extremely popular rock type for tumbling enthusiasts. Just about everyone is familiar with the beautiful deep purple and violet colors that come about irradiation and impurities in the quartz such as iron. The finished product at the end of tumbling is gorgeous since the purple stone is translucent and polishes extremely well.

### Red Jasper

This jasper is bright red in color and is nicely marked with a few veins and pockets of white to gray translucent quartz. It produces beautiful tumbled stones with a few interesting quartz veins. Rare pieces contain a tiny streak or a few specks of gray to silver hematite. The hematite suggests that this material was deposited in association with a banded iron formation.



### Black Obsidian

Black obsidian is also known as Royal Agate, Xaga, Glassy Lava, Volcanic Glass, and Glass Agate. It is born out of rapidly cooling lava flows from a volcano.



Obsidian has a 5.5 on the Mohs hardness scale which makes it relatively easy to use for artists and artisans. Prehistoric humans even used Obsidian as mirrors due to its reflectiveness.

You can get Obsidian in a variety of forms. Whether it's a Black Obsidian ring, earring, necklace, bracelet, or ankle bracelet, it will help tame wild energies.

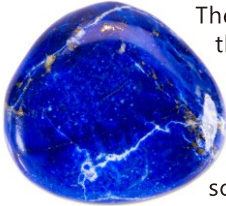
## Dalmatian Jasper

Dalmatian Jasper, also known as Dalmatian Stone or Dalmatian, comes from Chihuahua, Mexico. It gets its name from its spotted appearance, bringing to mind the breed of dog known as Dalmatian.

It is a member of the Chalcedony, silicate, and quartz group with the chemical composition  $\text{SiO}_2$ . It is measured as having a hardness of 6.5 -7 on the Mohs scale. Dalmatian Jasper can be polished to a very high luster and is semi-precious.



## Lapis Lazuli



The name comes from the Latin word 'lapis' meaning 'stone' and the Persian lazward meaning 'blue'. The shades of blue contained within this crystal's structure are rich and deep in color, and it has gold flecks running through it, which give it a magical, mysterious charm. It is semi-translucent to opaque and polishes to a high luster. It is 5 -5.5 on the Mohs hardness scale, and its uses include cabochons, beads, carvings and spheres.

## Aventurine

Aventurine, sometimes called "aventurine quartz," is a variety of translucent quartz that exhibits a "glittery" appearance when it is moved under a light or when the angle of observation changes. When light penetrates the stone, some of it encounters tiny mineral crystals which reflect the light and make the stone sparkle.



In green aventurine the tiny crystals are usually a mineral known as fuchsite, a green mica that is highly reflective. The fuchsite crystals give green aventurine both its color and its glittery appearance - known as "aventurescence."

## Tiger's Eye

Tiger's Eye is a member of the Quartz family and has been revered for centuries. It holds many meanings, but it is most commonly seen as a stone that brings courage, power, protection and helps to maintain presence in this world.



It's yellow-brown to golden brown in color. It is a member of the quartz family and has a hardness of 7.0 on the Mohs scale - about the same as hardened steel.

Many people wear Tiger's Eye jewelry to symbolize courage and fearlessness, as well as good luck. Tigers are also popular in Zodiac-themed designs such as astrological signs or the Chinese Zodiac, with Tiger's Eye representing the year of the tiger.

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## Tumbling Logs

[illegible]