



Finding a Great Focal Bead

Finding a focal element that looks great both lit and unlit may be the most fun part of the project, but your first instinct might not lead you directly to the perfect bead. Here are some words of wisdom to get you started on the search for the Perfect (Illuminated) Bead.

Test lots of beads!

Once you've assembled a pendant-style LED strand into a tester (see our PDF *Instructions for Basic Component Kit Use*), you're ready to experiment. If you have a bead store nearby, take your tester and try out lots of different beads! Loose beads are easier than beads on strands, and look for beads with larger holes. In a pinch, hold the tester behind the bead if it doesn't fit into the hole, and look at how the light comes through near the edges to approximate what it will look like when lit from the center. (You can ream or drill out most types of beads to the required 1.5-1.6mm hole size.)

Avoid transparent beads (usually)

The AnglerFish team can sometimes be spotted at bead shows sticking lights into beads and debating their merits. This often leads to a small crowd forming when people see what we're doing, and we get lots of suggestions about which beads to try next. From this literal crowdsourcing we have learned that the beads most people try first tend to be **too transparent**. Somewhat surprisingly, when you can clearly see the LED element inside the bead it usually ends up looking a bit boring. The more interesting beads tend to be those that interact with the light "just enough", through either dispersion or reflections, to obscure the LED itself without completely blocking the light. A good first guess that is especially helpful when ordering online is to look at the stringing material. If you can clearly see the thread or wire

inside the bead, it's probably too transparent. If you can see a vague hint of the stringing material in some places through the bead you may have a winner. If you can't see the stringing material at all through the bead, don't rule it out – read the next paragraph!

Don't rule out apparently opaque beads

Some of the best lit beads we've seen have been beads that look opaque in normal lighting conditions. The AnglerFish team recently left home without our testers on a weekend trip and wouldn't you know it, we stumbled across some intriguing lower-grade emerald rondelles. After much debate accompanied by holding them up to the store fluorescents and trying to guess how much if any light was passing through, we decided to buy a couple "just to see". They turned out to be beautiful! Being open-minded in your testing of potential beads can lead to some surprising and wonderful discoveries.

Consider the size and shape

There are two effects to consider when choosing the size of your focal bead:

How large can the bead be before becoming opaque? This depends on the material but as a rule of thumb, beads up to about 16mm in diameter are a good bet and some materials work well up to about 20mm.

What lighting effect you are going for? Do you want a uniformly illuminated bead, or a bead with a glowing point at the center? Again the material is a significant factor, but when your focal element gets larger than 20mm, even if it still transmits light it tends to start looking like "object with a light in the middle" instead of "glowing object". This effect is particularly noticeable in long tube beads and high-transparency beads.

The bead's shape offers some interesting possibilities. For example, translucent triangular beads will transmit more light through the faces and less through the points, casting interesting shadows. Tube beads will glow more at the center and less at the ends (if the LED is centered). Raised transparent dots on lampwork beads can create headlight-like optical distortions. Carved or painted beads can also cast interesting shadows. Narrow rondelles can

allow light to spill over into adjacent beads or bead caps can be used to create additional reflections.

Some Recommended Materials

Of course this is not a comprehensive list, so keep your tester handy!

- **Gemstones**
 - Agate – crackle agate and banded agate are both good choices; the white matrix in fire and crab agate is opaque; moss agate can be amazing
 - Amethyst – lower-quality stones with more internal reflecting planes are more interesting when lit
 - Apatite
 - Aragonite
 - Calcite
 - Carnelian
 - New jade
 - Prehnite – the spiky inclusions make it fun
 - Rough-cut stones
 - Matte finish stones
 - Stones with inclusions
 - Crackle stones
- **Amber** – lower-grade cloudy amber has great light dispersion; more transparent amber has deep color, and inclusions can keep it interesting
- **Bone and horn** – often turns out to be more translucent than it looks
- **Lucite** – some is translucent and some is opaque, so use your tester
- **Lampwork glass** – matte finishes are particularly nice, and some glass that seems opaque isn't
- **Seed beads** – try mixing opaque, transparent/translucent and lined beads. Most light escapes between the beads. You can stuff a seed bead structure with polyester quilt batting to help diffuse the light. (See the Triforce Power necklace example in the Gallery on the AnglerFish website.)

- **Oddities** to entertain and amuse
 - Ping pong balls!
 - Soft rubber toys, like those spikey balls you find in gumball machines

Materials that aren't as interesting as you might expect (when lit)

Not that we're trash-talking any of the following list! These materials may be just the thing to complement your focal element but they're generally less spectacular as lit focal beads themselves. Note that these mostly fall into the "too transparent" category.

- Amazonite – small beads are sometimes sufficiently translucent, but typically amazonite is more opaque than it seems
- Aquamarine – similar to amazonite
- Citrine – usually too transparent
- Rose quartz – usually too transparent, although rough cuts are more interesting.
- Garnet – these seem like they should be great... but we've never seen it work that way. The size, shape and quality must be perfectly balanced to hit the sweet spot for illumination.
- Swarovski Elements crystals – these are carefully designed to sparkle when lit from the *outside* so use them as supporting characters
- Grade A and above gemstones in general (when graded on clarity and absence of inclusions)
- Transparent Czech, Venetian and other glass beads – metallic inclusions tend to be aligned to catch the light from outside and don't do much sparkling when the light is inside the bead
- Sea glass – could be fun in the right context, but often too featureless